

THE ARCHITECTURAL REVIEW VOLUME CXXIX NUMBER 772 JUNE 1961 FIVE SHILLINGS



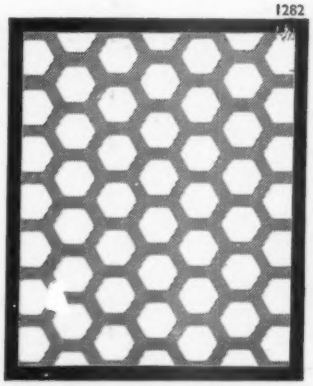
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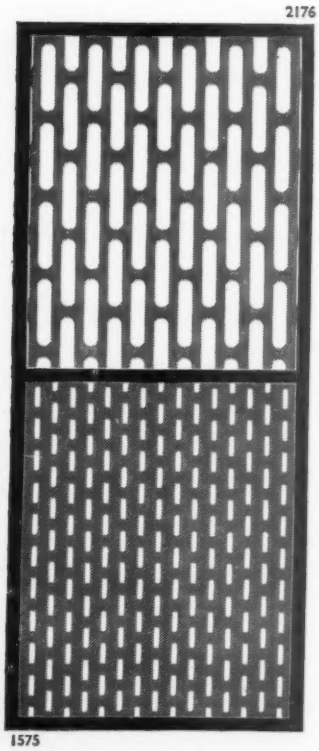
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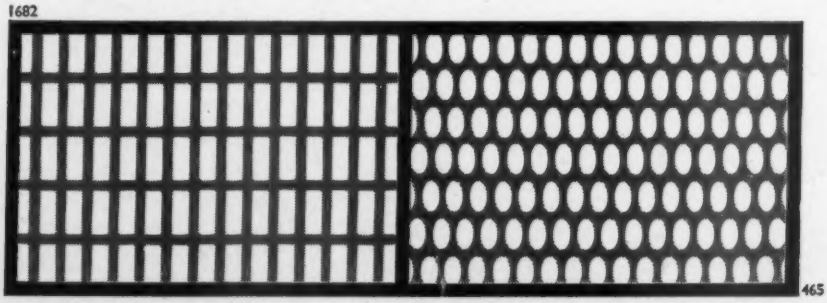




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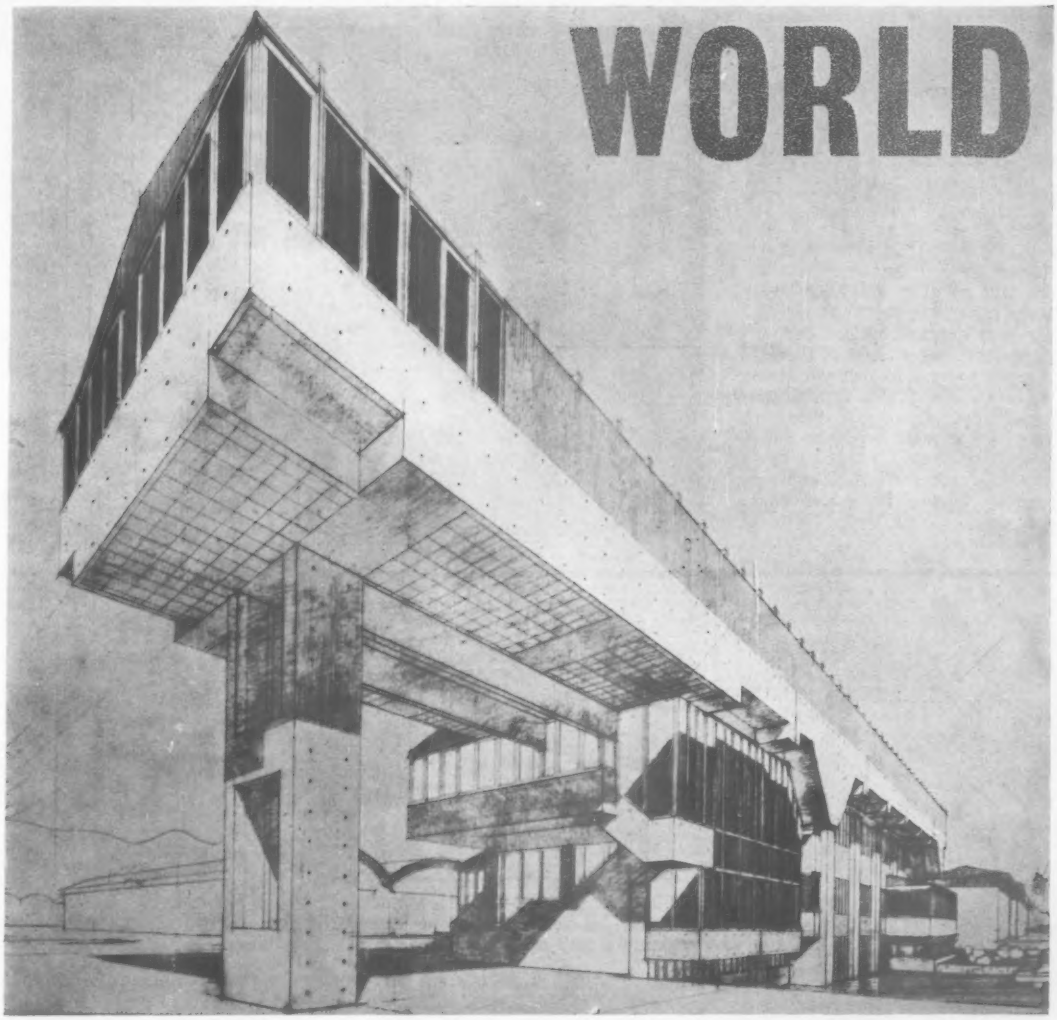
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WORLD

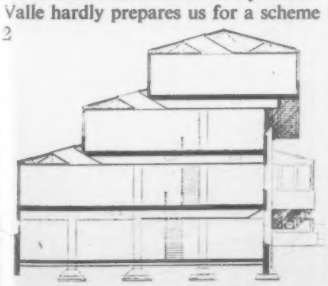


1

STUDIO VALLE

Casabella has just celebrated the tenth year of architectural activity of *Studio Architetti Valle* of Udine with an article by Francesco Tentori (in 246, 1960) reviewing the work done to date. In those ten years, Valle has become a name to conjure with—it is difficult to think of any other situation where a project such as the 'Rex' factory at Pordenone, 1, could appear as a design seriously intended for construction, rather than a fourth-year student project, but this scheme is going ahead—progress photographs (not yet very conclusive) support the article, as well as elevations, working details and drawings of the extraordinary leaning section that gives roof lighting to three office floors, 2.

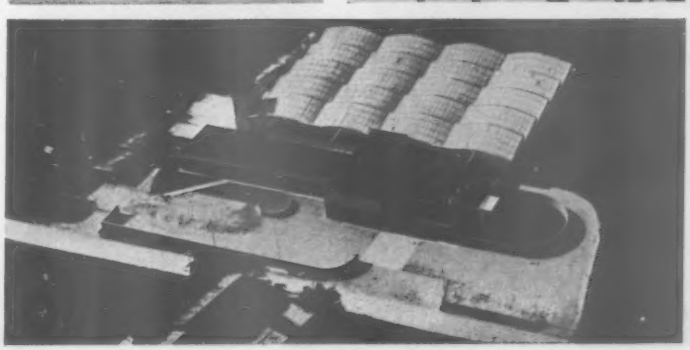
Previous industrial work by Studio Valle hardly prepares us for a scheme of this kind—the Chiesa works at Udine is no more than tamely eccentric in detail, 3, in spite of its Mendelsohnian plan, 4. But the uncompleted hospital at Portagruaro with its pierced chassis-beam, 5, 6, and



2



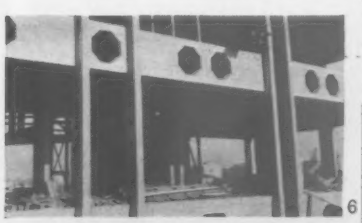
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ACKNOWLEDGMENTS

COVER: Galwey Arphot. WORLD, pages 365–368: 1–7, *Casabella*; 8–10, *The Japan Architect*; 13–18, *Bauen+Wohnen*; 19–21, *El Arquitecto Peruano*; 22–29, *Deutsche Bauzeitung*; 30–34, *Modulo*. VIEWS AND REVIEWS, pages 369–371: 1, R.Trorey; 9, Logan; 10, Frank Stanton. FRONTISPIECE, page 372: Abby Aldrich Rockefeller Folk Art Collection. TWO UNIVERSITY HOSTELS, pages 378–387: College Hall, Leicester, 1, 5, 6, 8–11, 13, Edgar Hyman; 3, 4, 7, 12, Galwey Arphot; Chamberlain Hall, Southampton, Henk Snoek. CRITICISM, pages 400–410: 5–8, 10, 14, Monica Lehmann; 9, 15, C. Michael Pearson; 11–13, 17, John Hillebon Agency. INTERIOR DESIGN, pages 411–414: 1–3, 7, Galwey Arphot; 4–6, Edgar Hyman. CURRENT ARCHITECTURE, pages 417–419: 1, 3, 4, P. W. & L. Thompson; 5–7, MOW. MISCELLANY, pages 420–426: Exhibitions, 3–9, 11–13, Abby Aldrich Rockefeller Folk Art Collection; Plants, 1, Toomey Arphot; 2, 3, Jane Bown, *The Observer*; Lamp-posts, Andrew Schumann. SKILL, pages 427–432: 4, Norman Gold; 6, 9, 10, C & CA.



The Cover *is a close-up photograph of part of the wrought-iron and stainless steel grille-door, designed by Louis Osman, which leads into the new treasury in Lincoln cathedral. The treasury, which is described and illustrated on pages 411–14, is designed to exhibit diocesan plate and has been installed in a disused chapel with financial help from the Goldsmiths' Company. Through the grille in the photograph can be seen some of the stone vaulting of the chapel and some of the plate arranged on shelves in a central showcase.*

THE ARCHITECTURAL REVIEW

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7

the suavely unpredictable block of flats in Udine, strictly attributable to Firmino Toso and Gino Valle, also with pierced chassis-beam at the level where the structure changes, 7—both of these do have something of the quality of structural bravura that Rex has, even if they cannot quite equal its air of being a piece of heroic-age engineering such as might have appeared in, say, one of the industrial architecture picture-books of the 'twenties. Tentori explains Rex partly in terms of functionalism, partly in terms of the landscape in which it is sited and the feasible views of it from the road, partly in terms of a supposed 'Friulian' type of expression proper to an office working in Udine (albeit with numerous American and British assistants at various times) and partly in terms of some form of anti-rationalism, in which the views of Italo Calvino, which were being used to beat up the irrationalities of Neo-liberty only a few months back, are cited to excuse the architects from being paralysed by wisdom or sinking in a sea of objectivity!

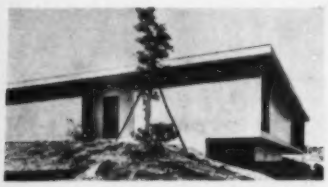
TOMIGAOKA

low-cost houses for Japanese commuters

Low cost housing is, by a tradition as old as modern architecture, a field of design where relentless rationalism is supreme and unquestionable. However, the Tomigaoka homes sponsored by the Kinki Railway Company in Japan as part of a public-authority package-deal commuter development, differ—in some ways—startlingly from the norms of this kind of development. Architects were fully involved (as rare in this kind of work in Japan as anywhere else), fifteen teams with offices in Osaka being each assigned one concrete prototype and one wooden, the aim of the exercise being to raise standards of accommodation above legal minima without exceeding reasonable maxima for selling price—under

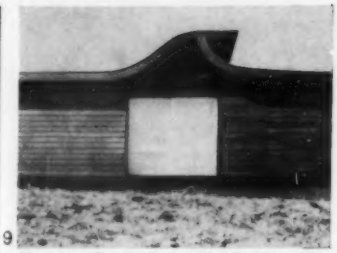
Tomigaoka

£4,000 for a concrete house, £3,000 for a wooden, plus about £500 for interior fittings and minimum site-work such as fencing. Only in the very last paragraph of *Japan Architect*'s description of the scheme does one come across the payoff, that this price, for houses of fourteen hundred square feet and up, includes the cost of the land.



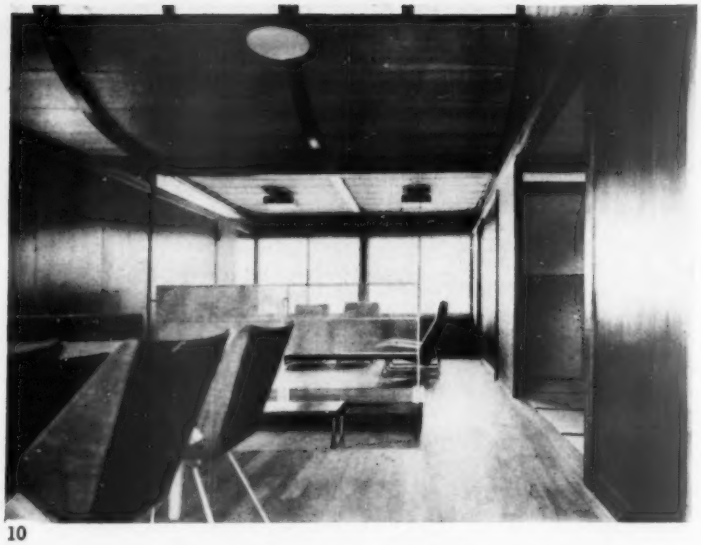
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The solutions vary widely, from international cubist, 8, by the Research Institute of Architecture, to a sort of

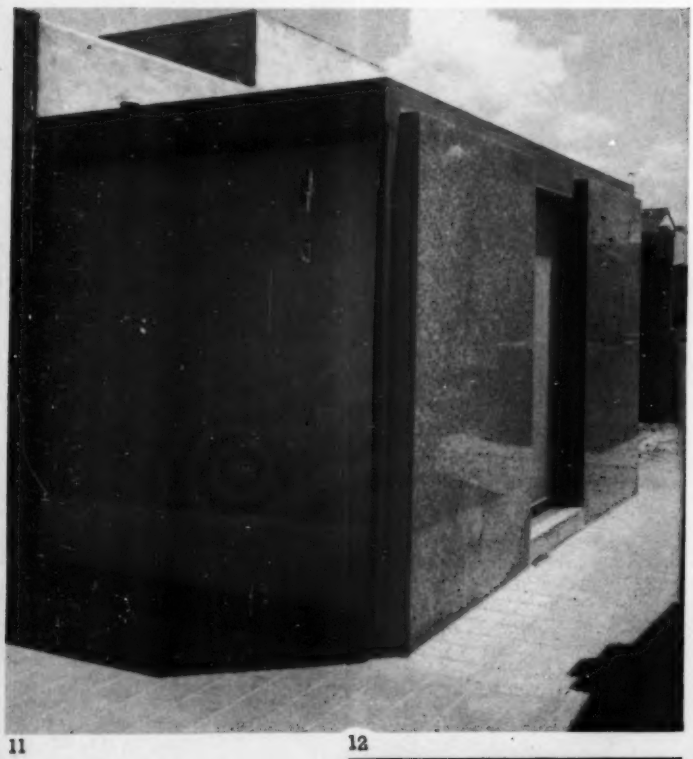


9

Katsura Revival, by the Endo office, but quite the most astonishing design is another one by the Research Institute team—a plain, elegant and very satisfyingly simple blend of East and West when viewed from its garden side, but twitching up into an extraordinary gable, 9, like a Japanese pictogram, on the end wall, which registers equally strongly inside the house, 10, where it provides a species of laylight above the centrally situated living and dining rooms.



10



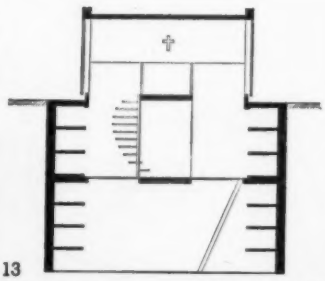
11



12

SEPULCHRE

Man's last home is usually the least functional, and most over-designed, in which he is called upon to 'live.' In spite of everything that good taste and a sense of the transience of worldly things would seem to require, a decent reticence is harder to find in the architecture of mausolea than anywhere else, and a design as controlled and self-contained as 11, by Francesco Bullrich and Eduardo Polledo of OAM-Buenos Aires, is very rare—as we all know. The simplicity is inherent, not superficial—the necessary chapel is provided by a bridge opposite the entrance, and from this a spiral staircase leads down into the tomb-chambers below, 12 and



13

13. The materials are suitably grave and durable—concrete, faced where suitable in San Luis granite, end-windows,



14

14, and doors of obscured glass in steel frames, white marble floors and plain plastered walls inside, 15.



15

LANDSCAPE ATTITUDE



16

Much argument about how landscapists, as a profession, view buildings, should be stilled by the new *Landschaftsverband* headquarters in Cologne, illustrated in *Bauen und Wohnen* 2/1961—the elevations, 16, tell the story—landscapists regard buildings as a regular geometrical background to natural forms. Although the plodding Miesian regularity of these exteriors by Schulze-Feilitz and von Rudlof becomes daunting after fifteen or sixteen bays, the building has a magnificent site facing the cathedral, 17, from the other side of the Rhine, and some handsome interior details, such as the staircase. In spite of these graces, however, one cannot but wonder whether it is sufficient for a building of a 'Representational'



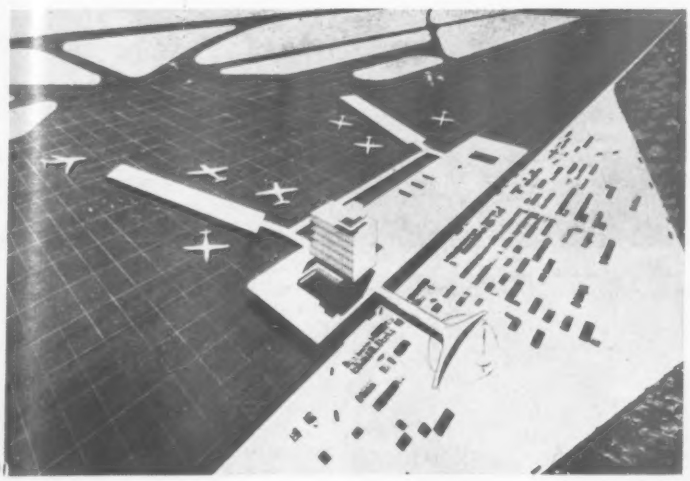
17

Cologne



18

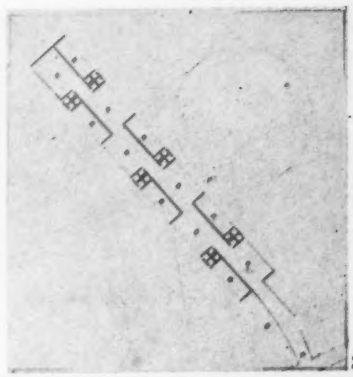
nature to reduce itself to the level of little more than a space modulator-diagram in which growing plants can run riot to visual advantage, and whether a Miesian façade can survive being so long and regular if it is not tall enough to catch a fair amount of reflected sky pattern. One suspects that façades such as these, however well detailed, 18 (though these are not of Schneider-Esleben quality), will soon look as dull as the concrete-framed sub-modern rent-boxes that went up all over Germany in the immediately post-war years.



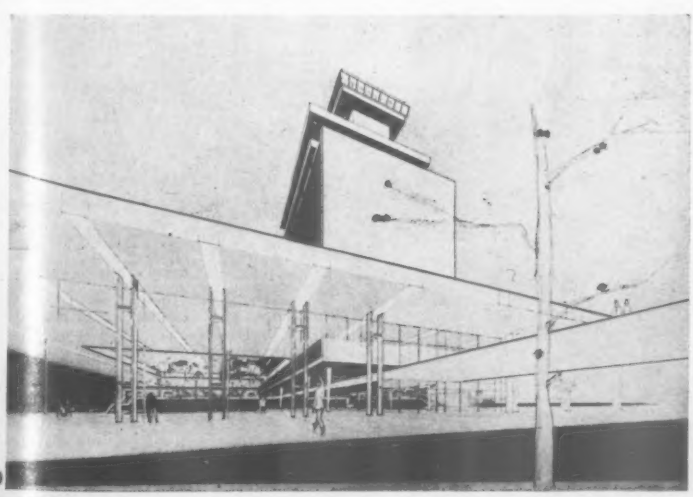
19

SIMPLIFIED AIRPORT

Prematurely, perhaps, the 'new' airport seems to have achieved an international norm. The project team of Arana, Orrego, Torres, Bao and Vasquez have produced for the new airport of Lima, Peru, a project that is clearly in the manner of St. Louis, Gatwick or Malpensa in its basic conception, if not in detailed form. The sketches reproduced in *El Arquitecto Peruano* (276-8, 1960) show a complex consisting of a broad concourse building, planned on a generous scale for the amount of traffic envisaged, 19, topped by an office/control tower, with a covered entrance from a substantial parking area, and two fingers running out symmetrically on to the apron. So far, an entirely conventional solution, even to the public viewing areas on the roof of the concourse and the fingers, but the section involves a drastic simplification of the increasingly complicated multi-level layouts that are becoming the rule. A ground level perspective, 20, will show that the concourse is little more than a sun-shading lid and that the fingers run—not above the tarmac to facilitate truck circulation beneath them—but at ground level and consist of sets of sheltered waiting-bays and luggage areas, 21, in which plane-loads can be made up for the appropriate flights. In view of the high degree of confusion that can accumulate even in the most 'sophisticated' multi-level terminals at even a small degree of overloading, one cannot help wondering whether a relatively cruder—and thus more adaptable—instrument, such as this, may not have virtues that would bear investigation before more European and American public money is invested in monuments of organizational complexity such as LAP or Idlewild.



21



20

THE DEILMANN HOUSE

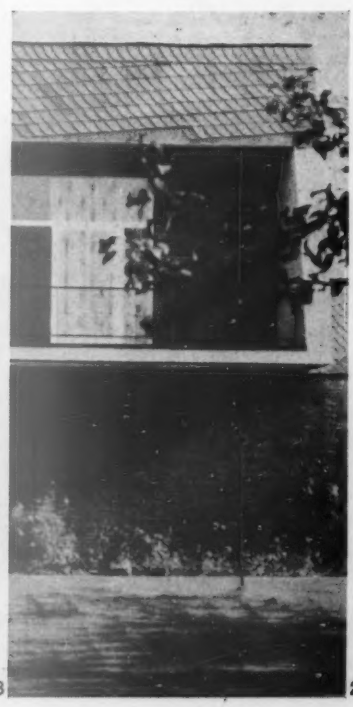


22

The manifest rationalism of Harald Deilmann's large scale works, such as his Nordwest-Lotto (*World*, February, 1961) clearly does not apply to his more private work, such as his own house near Munster, 22. This is not to say that the house is irrational—presumably he knows how the Deilmanns want to live and work—but in detail after detail, such as the tiling of roof on the garden side, 24, or the man-eating fireplace, 23, in the living room—he clearly feels no need for the regularity and restraint evinced in his other work. One of the most striking of his details here is the use of glass



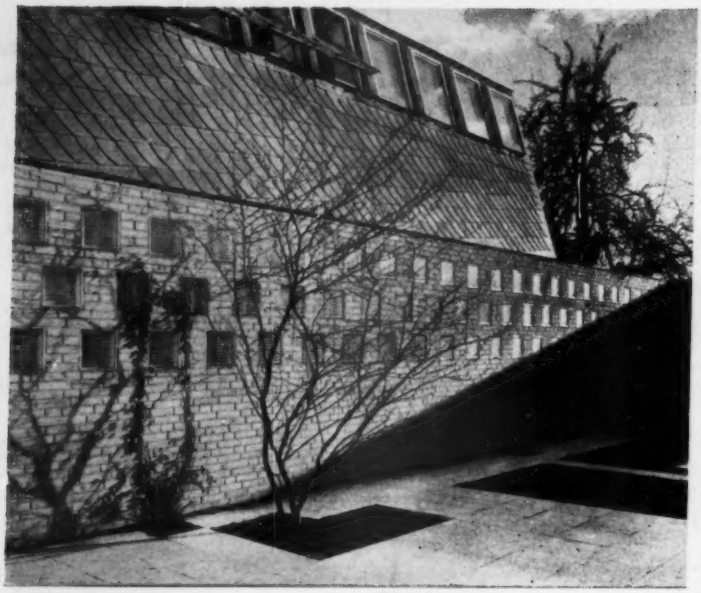
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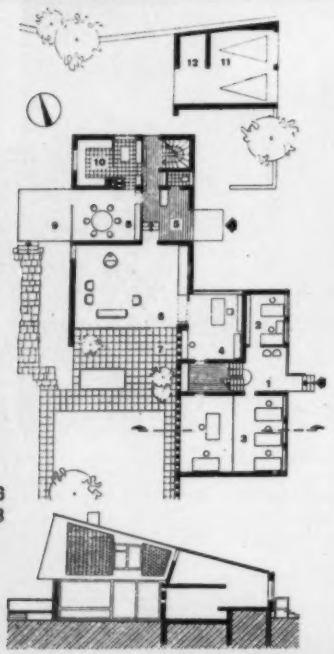
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SQUARED -UP IN BRASILIA

Niemeyer's Development Palace project (*World*, March, 1961) looks as if it may be only the first swallow of a square summer in Brazilian architecture with the prospect of Brasilia looking intolerably, sloppily, old-fashioned even before it is completed. His proposed Tennis Club there, 30, continues the squared-up constructivist trend and was published by *Modulo* (21, 1960) on the pages immediately following the publication of the positively Smithsonian rehabilitation-centre, 31, 32, also in Brasilia, by Glauco Campelo. To be fair to Campelo, this apparent brutalism is only apparent—the exposed frame is in dark-aggregated bush-hammered concrete, not steel; many of the façades present unmistakably the aspects of the Brazilian Modern Vernacular as we know it, 33, with its walls of gapped brickwork or hollow tile boxes, 34.

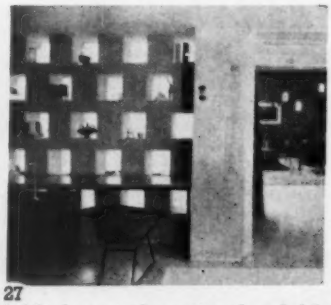


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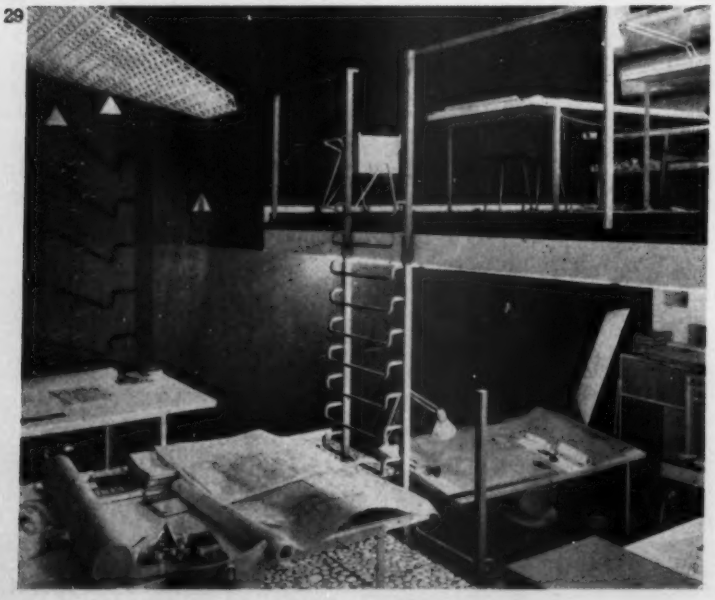
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Deilmann

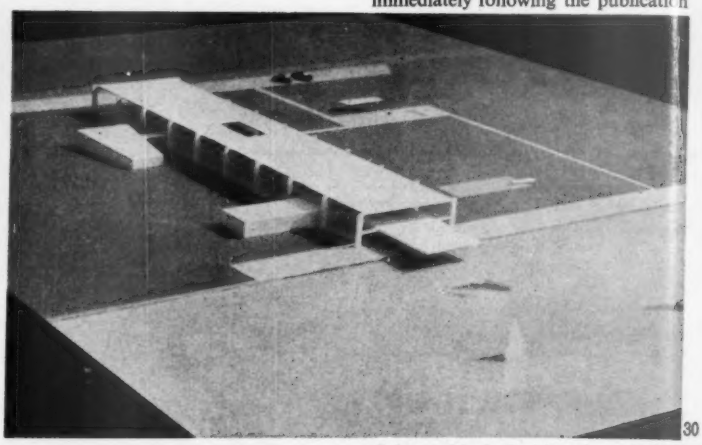


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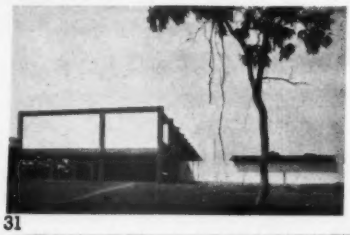
bricks in a regular pattern in a brick wall, 25. Primarily this is to give privacy to work-spaces without robbing them of natural light, as the plan shows, 26, but at one point it must have a more ambiguous function where the architect's own office combines working and family spaces, 27. Although it is not immediately clear from the exterior views, the drawing-office wing has a monopitch roof of the same inclination as that over the house, providing a split level drawing-loft for agile assistants, 29 (and section 28.)



29



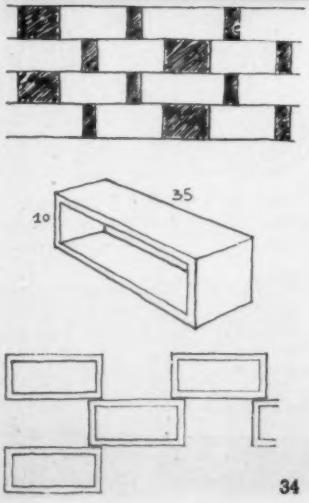
30



31



32



34



33

Even so, we appear to be faced with a Miesian trend, about whose origins and precise meaning in the Brazilian context one would like to know much more. Particularly, one would like to know which bears with greater weight—the pressure of a fashion from abroad, or the revulsion from a fashion at home, with the proviso that Campelo (and probably every other architect involved) can doubtless find watertight functional explanations for what has happened.

views and reviews

MARGINALIA

WINDSOR WITHOUT THE WALLS

The latest in the Civic Trust's series of face-lifting operations, in which shop-keepers and building owners, as well as the local authority, are helping to co-operate in improving the street scene, is at Windsor. As at Norwich (AR, May, 1959) and Burslem (AR, December, 1960) the Civic Trust's role has been to co-ordinate the work with the help of local architects.

The streets involved are Thames Street and Castle Hill, but the Windsor scheme, which was opened by the Queen last month, included one additional and unusual improvement: the removal of the modern barrier walls at the foot of the grassy slope on which the castle itself stands. It was a long process persuading the Ministry of Works and the local authority to sanction this improvement, which was completed just in time for the Royal opening with the help of volunteer student labour.

As part of the process of persuasion the Civic Trust prepared the accompanying photographs showing the scene as it was and as it would be with the walls removed.

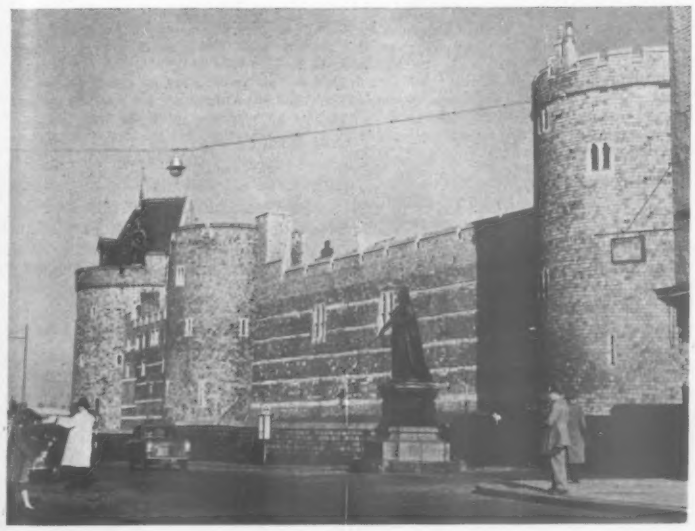
STEPNEY CHURCHES

The state of Hawksmoor's superb Anglo-Baroque churches in the East End of London is causing grave alarm, and the sum of money required to restore them and make good generally (estimated at £200,000 at least) is beyond the capacity of the church authorities. But St. Anne, Limehouse, Christchurch, Spitalfields, and St. George-in-the-East are far too important as history and far too good as architecture to be allowed to perish by default. A fund has been started for their restoration (which the Diocese of London is prepared to undertake if the money is forthcoming) and subscriptions or enquiries should be directed to John Betjeman, c/o British Linen Bank, Threadneedle Street, London, E.C.2.

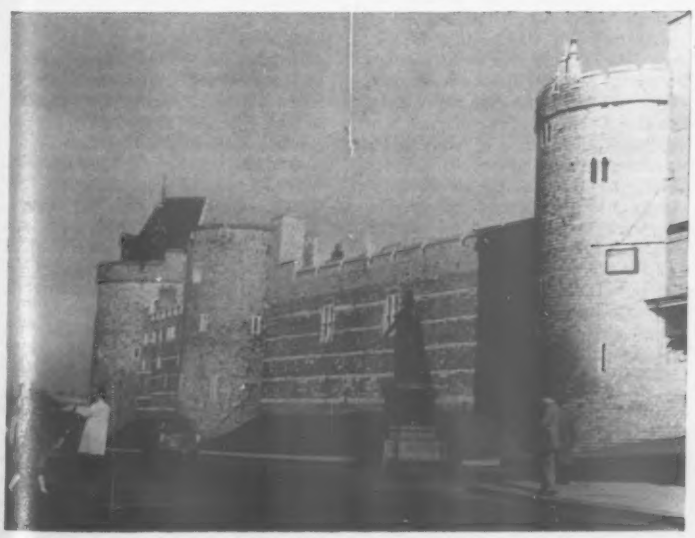
DESIGN AWARDS 1961

A more tough-minded attitude on the part of the jury for the 1961 Design Centre Awards has resulted in a change of type of product honoured, as well as an upgrading of general quality. No soft furnishings, wall or floor coverings appear in this year's list, nor pottery or table plastics. Technical and mechanical equipment gets a stronger showing this year—domestic boilers, slide projectors, adaptable light fittings, and a transistor radio by Ultra, 3, which is awarded the Duke of Edinburgh's Prize for Elegant Design. On the other hand, something like the Functional Tradition has been honoured in a carving set by Wostenholm's, of Sheffield, an extremely simple stand mirror by Peter Cuddon (designer, Colin Beales), and the latest version, 4, of Ernest Race's folding chair for shipboard and outdoors.

An award which one hopes was made *pour encourager les autres*, as well as on intrinsic merit, is that given to one of Harvey's litterbins, 5, but otherwise street furniture is not represented. The generally brisker tone of this year's awards, and their avoidance of products which, if handsome, are open to functional doubts, will hearten the Council of Industrial Design's critics quite as much as its supporters—the jury did, in fact, voice some minor functional criticisms of the Ultra radio, but they were very minor indeed, and the fact that they were by no means as radical as those that have been expressed about earlier award winners is a hopeful sign that a tougher choice can now be matched by better products.

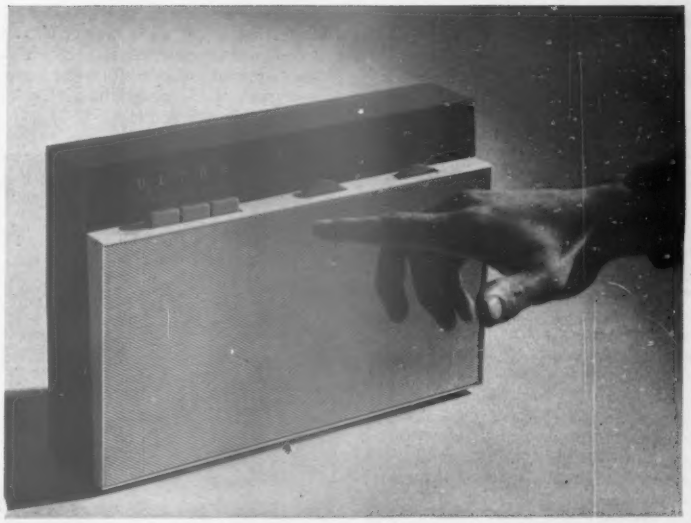


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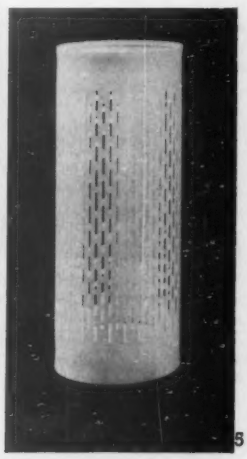
1, Windsor Castle before and, 2, after removal of the surrounding low walls.



3



4



5

Three products which received Design Centre Awards this year: 3, Ultra transistor radio; 4, folding chair by Ernest Race; 5, litterbin by G. A. Harvey & Co.

RIBA DRAWINGS

The better public knowledge the RIBA's collection of historical drawings, inaugurated by the Chatsworth-Devonshire catalogue (reviewed on page 299 of the May AR) is extended to a less specialized public by the subsequent publication, again through the agency of Tiranti, of an excellent five-shillingsworth of reproductions of some fifty-odd prize pieces from the collection. Their range is wide, including one late medieval sheet and a Rubens, at two of its extremes, an early Inigo Jones and a Lutyens at the others. There are a number of surprises, such

6, design for carved frieze of chimney-piece, by Philip Webb, from the RIBA collection.



as a Philip Webb design for decorative carving, 6, a magnificent Daniell drawing of Hindu Temples at Agori, 7, and a stirring Thornhill decorative scheme complete with iconographical notes, 8. The riches and resources of the RIBA library are not fully appreciated even by specialists—one suspects that they were not fully appreciated even by the RIBA until John Harris and Prunella Fraser got to work on them, and began the monumental task of cataloguing. Now, however, specialist and general reader alike are beginning to get some idea of what a wealth of material there is, and to have their appetites whetted for—one hopes—a more active programme of exhibitions in Portland Place.

CORRESPONDENCE

THE FOUR FAILURES

To the Editors.

SIRS,—Ian Nairn's assessment* of the present dreary lifelessness of most of our housing estates, together with his various proposals for improvement, is a very welcome piece of thinking. He writes that 'Life must be taken out of its sterile compartments and remade whole again.' This could well be a motto, printed large, to hang over the drawing boards in every architect's and planner's office.

How refreshing, also, to find a good deal of the blame placed fairly and squarely on the shoulders of the architect. However, I think that one of the important points made is questionable. Ian Nairn thinks that the failure in the relationships of elements is due to an inability to replace the unconscious and instinctive by a conscious act of judgment. But why should instinct in finding pleasure-giving relationships be merely a happy quirk of the past, denied to present generations? Surely, the key to the whole problem lies in *feeling*. The creation of an amiable environment *must* be the result of deep feeling on the part of the designer. Apply conscious acts of judgment by all means, but with emotional warmth behind them, not cold-headed intellectual detachment. This *feeling* for design (unconscious or instinctive, call it what you will) is as possible for us to-day as it was for a lucky few of our great-grandfathers.

The failure to produce a living environment is largely an emotional one. After all, even the gloomiest client or committee (a favourite scapegoat, this last one) may be whipped up by a bit of enthusiasm, should the designer really care enough about his proposals. To create some arbitrary divisions where no clear-cut boundaries exist, emotional failure on the part of the designer to create an environment with some 'go' in it falls under one of three main types.

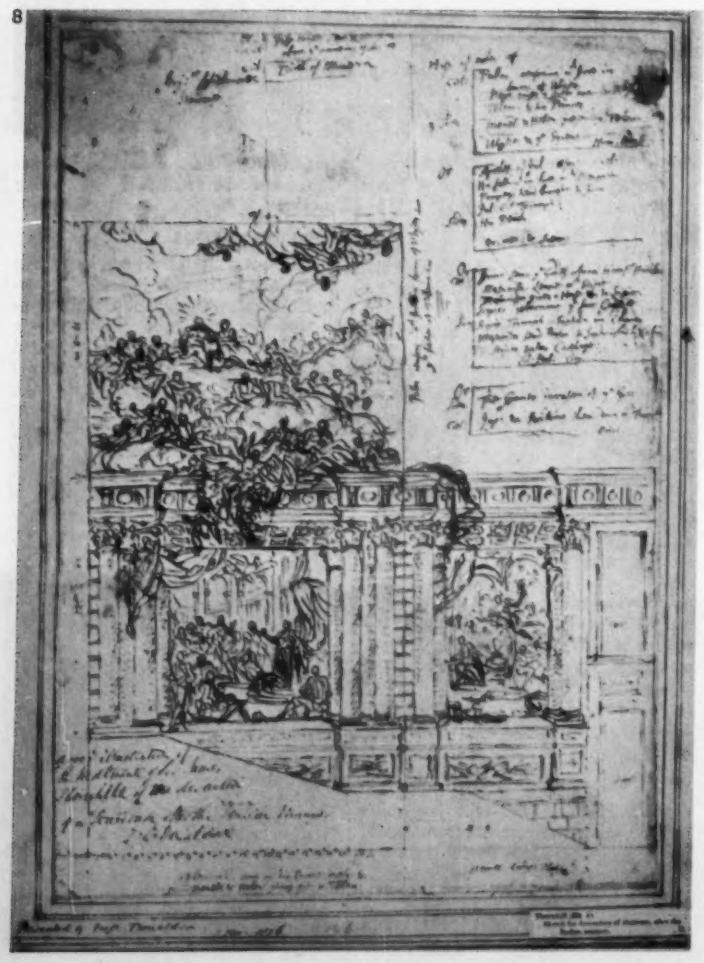
1. In the first case, the designer may be so neurotically involved with the planning problems confronting him that any reasonable solution is impossible. To take an extreme example, someone suffering from acute claustrophobia is unlikely to plan a satisfactory urban enclosure. On the one hand, his plans may tend to have a wide-open prairie look about them; on the other, he may be attempting to compensate his irrational fears by producing arrangements on paper that are so chaotically cramped as to verge on the impossible.

2. Secondly, the designer may *think* in the direction of having the right ideas, but his thoughts never get out of his head. Immediately pencil touches paper, timidity sets in. Narrow gaps become just that little bit wider, and inspiring unconventional features disappear altogether. Everything is watered down towards mediocrity, or else attention is focused on detailed design at the expense of the overall lay-out. There is much talk, the big ideas are bandied around, but there is little action. Behind all this is a largely irrational fear of Authority, in the guise of innumerable father figures wielding big sticks. What *will* they say about a display of originality? Why, one might even become the centre of protracted attention, and that wouldn't do, would it? The lamentable reality of the situation is, of course, that Authority itself, fearing yet other

* In his article, 'The Four Failures' on spec-built housing in the March, 1961, AR.



7



8

Two more drawings from the RIBA collection: 7, Hindu temples on the River Son, by Thomas and William Daniell; 8, Sir James Thornhill's sketch for a mural decoration of 'Serjeant Highmore's Staircase.'



The main banking hall of Barclays in Birmingham, 9, has recently been restored and put in good order by the staff architects of the premises department of Barclays Bank. One of the handsomest surviving Victorian commercial interiors in the Midlands, it was designed in 1873 by Yeoville Thomason, and the present sympathetic restoration and refurnishing is some amends for the disappearance of Thomason's original exterior, which was refaced and altered in 1928. It will be noted that the new work does not ape the style of his original detailing, but does employ the kind of materials that would have been used in furnishing it at that date—black leather upholstery, slate, brass or ebonized trim on mahogany.

Authorities, often feels very insecure, and is possibly open to some masterful, forthright handling.

3. Thirdly, there is the designer who does not even begin to think. Incapable of much stimulation, he passively churns out material that repeats all the mistakes of past and present, so stunted is his initiative.

Fortunately, most designers, I think, fit into the second category, in a more or less degree. We all want stirring up, and the more Ian Nairns there are to stir us up the better. Long live the ice-cream van chimes!

Yours, etc.,
JAMES H. CHADWICK.
Nottingham.

To the Editors.

SIRS,—Mr. Nairn's article on speculative building in your March issue is often sensible but at times there are extraordinary lapses. For instance when he says the ice cream chimes are 'often the only sign of life in a square mile or so and, dear God, some people want to stop them.' To me the chimes are not a sign of life but of death. These frozen lumps of lard have the rigidity of death and represent the half-hearted attempts of guilty parents to buy a substitute for parental affection for their unfortunate offspring. Unable to love their children, they buy them ice cream instead.

What Mr. Nairn means by the only sign of life, I don't know. If he means noise, then I can only say he has obviously never lived on an estate himself. The bad layout inevitably forces the children to play in the street since the back gardens are devoted to cabbages and the front gardens are too small to serve any useful purpose whatever. The result is that until the darkness brings some measure of relief, the unfortunate people who live in these places have to put up with the shrieks and shouts of noisy, energetic children kicking plastic footballs about the street. Apart from this, there is always the radio which may attack you from any quarter—from next door, from across the street, from tradesmen's vans. At night you sit in the back room and try to read to the accompaniment of the neighbour's television as the sound waves percolate steadily through the thin partition separating one half of the semi-detached dream house from the other.

Mr. Nairn says he is not trying to make out that life on a housing estate is hell on earth. There is no need for him to do this, as people who live in these places know that it is hell. Not that they all know it. Many of them know very little about anything except frozen lard and bottle fed babies and independent television; but people who have any glimmering of awareness know it, and being in a minority, there is very little they can do about it. They are the tormented souls who live in a hell provided for them by spec builders, weak planners and the big financial mass culture boys catering for the lowest common denominator.

Why Mr. Nairn has to bring God into the argument, I do not know. If ever there was a godless desert it is the modern housing estate.

Yours, etc.,
WILLIAM BLATCHFORD.
Cheltenham.



The newest Le Corbusier building, following after the fifty years of work celebrated in the book reviewed below: his Assembly Building at Chandigarh, a recent progress picture by the American photographer Frank Stanton.

To the Editors.

SIRS,—Mr. Nairn's article on speculative housing has exposed most of the influences which produce this horrid growth, but I would suggest one other cause. The majority of houses are produced by builders working with borrowed capital and a small profit margin. Interest charges and overheads are a serious consideration and success depends on speedy turnover. A planning application for the usual uninspired layout of semi-detached houses will almost certainly get prompt one-month approval. Any unusual layout, however good, will at best get bogged down in two-month deferment for discussion of detail, and in many cases permission will be refused. This may be reversed on appeal, but at the cost of another six months. Most builders know this only too well. They cannot afford to waste months and it is difficult to see why they should be expected to bear the cost of pushing improved layout through an inefficient planning organization.

Anyone who has had the good fortune to work with a creative planning officer will know that a great deal can be accomplished very quickly, but unfortunately many planning officers either lack understanding of layouts outside the '30 ft. building line, 3 ft. side passage' or else they are utterly unable to influence their own committees. Above all, they lack a sense of urgency and do not realize that for a builder time is expensive. Any commercial concern which operated at the speed of the average planning authority would soon go bankrupt.

Further difficulties arise in any imaginative layout because of antiquated bye-laws. So far as I can see from the plans shown, the housing schemes at Kirkcaldy and Prestonpans, illustrated in your 1961 January Preview number, would not comply with the model bye-laws as interpreted in southern England. It does seem as if the entire machinery of building control is deliberately aimed at the production of Subtopia.

Yours, etc.,
R. R. HAGGARD.
Wallington, Surrey.

BOOK REVIEWS

THE POETRY OF LE CORBUSIER

LE CORBUSIER—MY WORK. *Translated by James Palmes. Introduction by Maurice Jardot. Architectural Press. 84s.*

As Maurice Jardot says in his introduction to this volume, Le Corbusier 'has known (and still knows) incomprehension, hostility, betrayal and, worse still, gross injustice.' Admittedly Le Corbusier is not a man to suffer fools gladly, and as fools of one kind or another are rather plentiful among the people an architect has to deal with, it is easy to get a reputation for aggressiveness, egoism, complacency, and especially 'a somewhat bleak attitude of mind making no allowances for doubts and shades of opinion.' This, however, is the front Le Corbusier turns to the enemy, and, as M. Jardot goes on to say, and as all who know him well can confirm, 'The "Corbu" of his friends is quite different; argumentative and ironical, at times, certainly; but exquisitely kind and perceptive, although sometimes concealing this behind a rather gruff exterior; the modesty of his behaviour, the respect which he shows to the views and opinions of others, and the attention which he gives them, are always exemplary when he is with people who, he knows, appreciate and like him.'

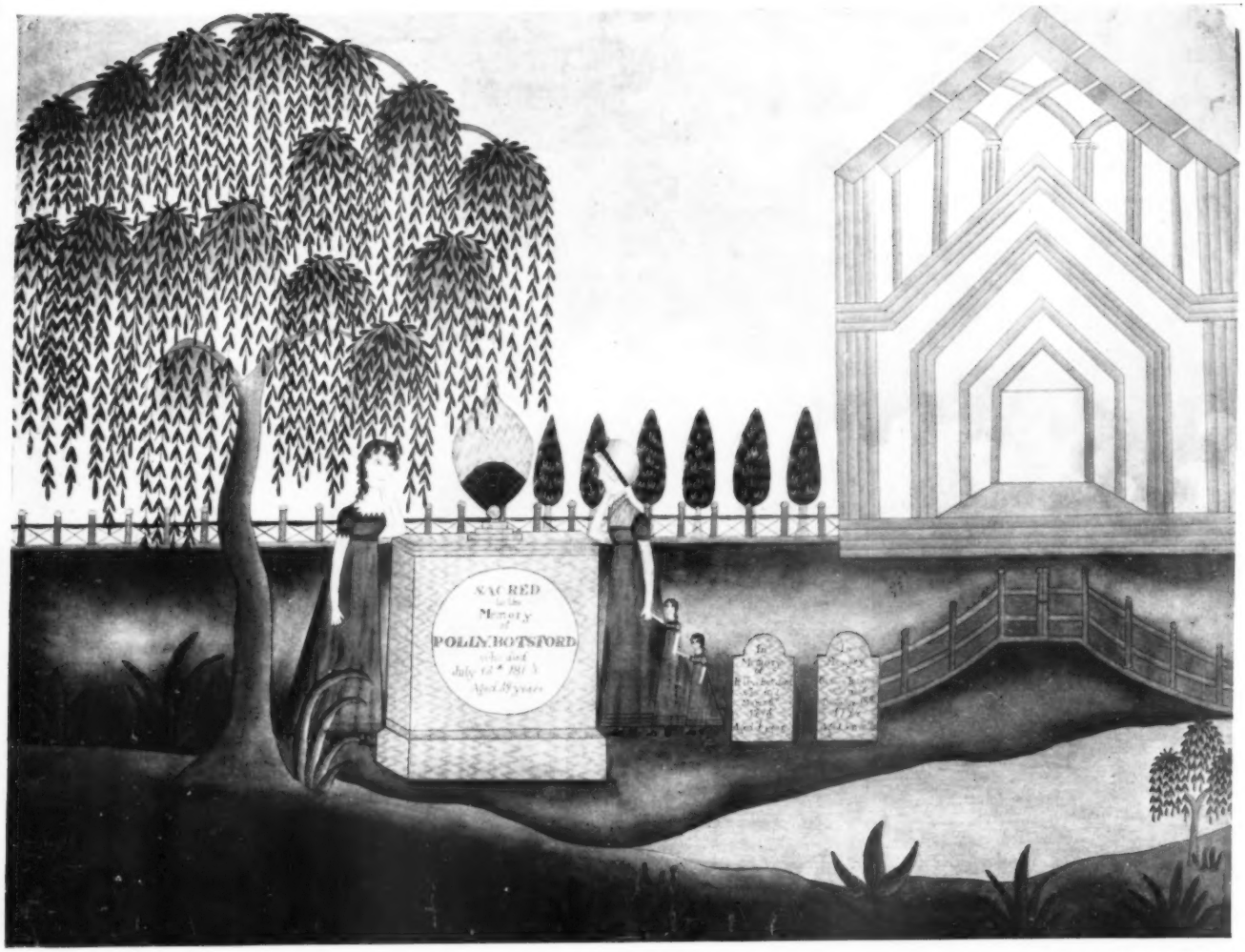
M. Jardot does not attempt to disguise the bitterness that remains at the end of a life so full, so happy and so dedicated; for much as Le Corbusier has accomplished, universal as his influence has been, the final impression is one of lifelong frustration. It is perhaps a fate so unjust that inspires so much affection and devotion in his friends and pupils. The bitterness, as Maurice Jardot says, has come to him from others, 'from the invariable and endless difficulty of getting evidence admitted which is contrary to custom; but that is the inevitable lot of those who influence the course of history, who follow the slope, but in an upward direction; we may deplore it, but we cannot be surprised.' (Perhaps, after so much quotation, this is the place to comment on the exceptional excellence of the translation of the texts in the volume, which we owe to James Palmes.)

The volume under review is an 'album,' by which I mean not exactly a family album, but the author's own pictorial record of a career that begins in the 'homeland' of La Chaux-de-Fonds in the Jura, where the Jeanneret clan had its roots among the clock-makers and the peasant-craftsmen, and where Le Corbusier from thirteen to seventeen years old had 'the tool of the watch-case engraver in his hand, or the goldsmith's hammer and chasing-chisel.' The facts of his life from then onwards are given in lively diary form with illustrative sketches and photographs. There are revealing and inspiring travels in the Balkans, Turkey, Asia Minor, Greece, Italy and then the arrival in Paris in 1919. Drawings, always drawings and paintings—always the visual approach, but visual poetry, blossoming into buildings, paintings, frescoes, town-plans, poems, manifestos. Reality, he discovered, had nothing in common with books of instruction. *L'Esprit Nouveau* was founded, and the pseudonym Le Corbusier was adopted. The campaign had opened, a banner raised: 'Architecture is the masterly, correct and magnificent play of masses brought together in light.' The first pavilion of *L'Esprit Nouveau* was erected at the Exhibition of Decorative Art in Paris in 1925, 'in face of implacable hostility.' In 1959, after fifty years 'occupied with many adventures and difficulties, catastrophes and from time to time success,' Le Corbusier was still affirming: 'My cities are green cities. My houses give sun, space and green.' But in 1960 he has sadly to repeat what he had said at Buenos Aires in 1929: *l'académisme dit Non* !

The most damning indictment that any future civilization will bring against the first half of the twentieth century is that it lacked the courage of its artists, above all, of its architects. It is easy to attribute this disgrace to capitalism and the profit motive, but it lies deeper than that. Moscow and Peking show that same basic timidity. There have been gleams of light in the United States and Brazil, but the visual panorama of the whole world is chaotic. Le Corbusier has not been alone in his frustration—the lives of Wright, Mies van der Rohe, Gropius—all illustrate the same fragmentary achievement, the same frustration by human stupidity.

That stupidity, in my opinion, can be defined. It is a rejection of poetry, a masochistic denial of visual delight, and is a product of industrial alienation, a denial of the richness of nature, our own internal nature as well as external nature. 'My research,' Le Corbusier declared two years ago, 'is, like my feelings, directed towards what is the principal value in the life: the poetry. Poetry is in the heart of man and is the capacity to go into the richness of nature.' How can poetry be restored to life? That has been Le Corbusier's preoccupation for fifty years. He has shown the way. It is for others to follow in that second industrial era 'which will be the era of harmony and is only just beginning.'

Herbert Read





Theresa Yerks. Aged 30. March 29th 1837. Julia Ann F. Yerk. Aged 26 August 23 1837. Harriet Yerks. Aged 26 August 23 1837.

The American scene depicted by untrained hands. On the facing page: two examples of naïve early nineteenth-century American painting belonging to the Abby Aldrich Rockefeller Folk Art Collection at Williamsburg, Virginia, but temporarily to be seen at the Museum of American Art at Claverton Manor near Bath. This new museum, which opens on July 1, is the subject of an article on page 420.
The paintings are: top, a mourning picture (Polly Botsford and her Children), artist unknown, c. 1813; bottom, The York Family at Home, by Joseph H. Davis, 1837. Davis painted in a number of small towns in Maine and New Hampshire.

Peter Collins

ASPECTS OF ORNAMENT

All architects agree that architecture is something more than just plain, honest, straightforward building, but it is becoming increasingly doubtful, as the variety in contemporary monumental buildings increases, whether they agree as to what that 'something' is. It is clear, for example, that many buildings serving the same function, such as the latest university buildings constructed in England and America, have little in common with one another (apart from the use of modern building technology) except 'the rejection of the trappings of the historical styles'; that stirring but superannuated war-cry which was the inspiration of the early pioneers. But whereas the importance of these buildings is widely accepted, and their architectural qualities frequently discussed, the nature of the factors which differentiate these qualities from purely technological qualities has yet to be unequivocally defined. It cannot be simply a matter of good proportions, because proportion has little relevance to Giedion's theory concerning the Interpenetration of Space, whether it be Baroque space or Cubist space. Moreover, it is clear from at least two recent competitions (the Sydney Opera House and the Toronto City Hall, where the proportions of both winning entries have had subsequently to be considerably modified because of the structural inadequacies of the original designs) that proportion is not considered an important criterion. The distinction must therefore lie in something else.

In the nineteenth century, the majority of theorists had no doubts whatsoever about the nature of this distinction, since they generally agreed with James Fergusson that architecture was 'nothing more or less than the art of ornamented and ornamental construction.'[1] The problem which obsessed them was to decide what was the correct type of ornament. There were, of course, one or two eccentrics who rejected the idea of ornament altogether. J. N. L. Durand had insisted, at the beginning of the century (when the French state was in fact too poverty-stricken to ornament new public buildings even if it wanted to), that beauty in a building resulted naturally and necessarily from the most economical structure imposed on the most economical plan. Horatio Greenough, still smarting over the rejection of his nude statue of George

[1] James Fergusson: *A History of Architecture* (1865), vol. I, p. 9.

Washington, similarly insisted on the total rejection of ornament, and used arguments which were later to be employed by Adolf Loos. But the nineteenth century in general approved unquestioningly the desire for ornament, which Owen Jones, for example, believed 'must necessarily increase with all peoples in the ratio of the progress of civilization.'[2] As a result, ornament, far from being rejected by the leading architects, became more luxuriant and more extravagant as the century proceeded, until it culminated in the rich overall surface decorations we associate with the nineteenth-century buildings of Louis Sullivan and Frank Lloyd Wright.

Curiously enough, the problem which occupied the most thoughtful and progressive mid-nineteenth-century theorists was not so much concerned with the nature of ornament as with the nature of plain straightforward building. Two answers were put forward; the first, making use of an analogy with literature, claimed that plain building was comparable to vernacular speech; the second, making use of no analogy at all (a singularity at a time when analogy seemed to most theorists to be the only alternative to archæology) claimed that plain building was nothing more nor less than civil engineering itself.

The belief in the virtues of 'vernacular' structures was the basic tenet of the Queen Anne Revival, first proposed exactly a century ago by the Rev. J. L. Petit, a well-known belligerent of the Battle of the Styles, and probably inspired by Scott's Remarks on Gothic Architecture (1858), where the relationship between 'vernacular domestic architecture' and the ecclesiastical architecture of the thirteenth century was fully discussed. At a lecture given in May 1861, he suggested that if his audience were to look at the best monumental buildings of Queen Anne's reign, they would see that these were simply vernacular buildings plus ornamentation of a very appropriate kind. As a result, they harmonized with the character of the houses men built when they built without reference to style, and were guided solely by the consideration of their own requirements, the state of society, climate and materials.[3] It was a style, moreover, which was perfectly suited to the wants of their own day; ' expressive, or capable of being made expressive of the spirit of the age; and sufficiently comprehensive to embrace both vernacular and monumental works, and that large class which partakes of both characters.'[4]

The significance of this proposal, as far as more recent developments in architecture were to be concerned, was threefold. Firstly, it deliberately broke through the archæological barrier which in England and America had separated architecture from life for nearly a century, and substituted the idea of selecting architectural forms on the basis of their appropriateness, and according to the designer's unfettered choice. The Queen Anne period was taken as a suitable precedent because many buildings constructed then were characteristic of what Sir John Summerson has called 'artisan mannerism'; the unsophisticated mixing of various tectonic and decorative elements without that antiquarian pedantry which in the following reign so often typified the architecture of Palladianism. Moreover the Revival itself went even further; it often employed motifs that were not eighteenth-century at all, but more strictly Jacobean. In other words, the 'Queen Anne' style in England was really the equivalent of the 'Francis I' style in France, when Renaissance decorative motifs were applied undogmatically to freely-planned compositions (as on the Francis I wing at Blois) without strict reference to antique precedents or rules.

Secondly, the Queen Anne Revival introduced into England the philosophical notion of Eclecticism. This word is frequently misused to signify an indiscriminate use of styles, such as was exemplified by those architects who designed Palladian buildings one day and Gothic buildings the next without any apparent misgiving. In this sense, it corresponds to what theologians more correctly term 'Indifferentism.' The true meaning of Eclecticism is defined in the *Encyclopædia Britannica* as 'a composite system of thought made up of views selected (εκλέγω) from various other systems', and it was in this sense that it was proposed by César Daly in the *Revue Générale de l'Architecture* in 1858.[5] The idea undoubtedly stemmed from Victor Cousin's series of lectures entitled *The True, The Beautiful and The Good*, published five years earlier, in which the historical method was applied to philosophy in the same way that Darwin was then applying it to biology and architects were applying it to architectural design. Victor Cousin claimed that one should not pedantically accept any one philosophical system to the exclusion of all others, but decide rationally and independently what philosophical facts were true, and then recognize and respect them in whatever historical contexts they appeared. The history of philosophy thus became, he asserted, 'no longer a mass of senseless systems, a chaos, without light, and without issue; but in some sort a living philosophy.' If, in this sentence, we substitute the word 'architecture' for the word 'philosophy,' we have the basis of the theory proposed by César Daly, elaborated by Guadet, and still taught in most of our schools.

Thirdly, it introduced the notion that the basis of a living architecture was, in J. L. Petit's words, 'our ordinary or vernacular architecture.' The important effect of this on subsequent architectural theories cannot be exaggerated. In the first place, it undermined the old idea of relating monumentality to

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[2] Owen Jones: *Grammar of Ornament*, first sentence of chapter 1.

[3] It required a theorist who was not a professional architect to perceive the importance of this characteristic of vernacular building. Another thoughtful layman, Dr. John Robison, had remarked on the same thing in his lectures on *Mechanical Philosophy* given at Edinburgh University at the end of the eighteenth century: 'In the simple unadorned habitations of private persons, every thing comes to be adjusted by an experience of inconveniences which have resulted from too low pitched roofs, and their pitch will always be nearly such as suits the climate and covering. Our architects, however, go to work on different principles. . . . We cannot help thinking that much of their practice results from a pedantic veneration for the beautiful products of Grecian architecture. . . . Since stone is the chief material of our buildings, ought not the members of ornamental architecture to be refinements on the essential and unaffected parts of a simple stone-building?' (1822 ed. p. 555).

[4] *The Builder*, vol. xix, p. 251. The fact that this idea was put forward very soon after the Battle of the Styles (i.e. the Foreign Office Competition controversy of 1857-59) is clearly of great importance when assessing the significance of the Queen Anne Revival. In the sole authoritative monograph on this subject (AR July 1943, p. 16) Dudley Harbron was only able to trace the term back to 1874. The first Queen Anne Revival building, according to Professor Hitchcock, was the lodge at Kew Gardens, dated 1867.

[5] This, as Professor Pevsner has kindly pointed out, is contemporary with Scott's correct use of this term in his *Remarks on Gothic Architecture* (p. 265), published in the same year. But whereas Scott demanded unity of style (i.e. based on thirteenth-century Gothic) and believed that 'like all genuine styles,' the style of the future must have 'its roots in the temple' (p. 273), the essence of Daly and Petit's advocacy was to disregard archaeological classifications, and to accept all buildings of the past as a potential 'portfolio of motifs.' It is worth noting that Diderot, in the *Encyclopédie* of 1755, defined it rather differently from both and in a way typical of classical rationalist thought. 'An eclectic,' he wrote, 'is a philosopher who treads underfoot prejudice, tradition, seniority, general consent, and authority, and . . . goes back to the clearest general principles, examining them, discussing them, and accepting nothing except it be on the evidence of his own experience and reason.' We may compare this with the remark of J. F. Blondel (who contributed the articles on Architecture to the *Encyclopédie*): 'The ancients can teach us to think, but we must not think as they did. . . .' (*Cours*, vol. iii, p. iv).

temples and churches by giving minor domestic architecture a predominant influence over architectural theory. Thus the houses designed by the pioneers of modern architecture became the most influential means by which new forms and ideas were introduced. In the second place, it challenged the Italian Renaissance doctrine—introduced into architectural education in 1806 with the foundation of the Ecole des Beaux-Arts—that architecture was essentially one of the three Arts of Design; for by insisting upon the analogy between architecture and literature (in which composition also makes use of a vocabulary of standardized elements), it separated the theory of architecture from that of sculpture and painting; arts in which, as Susanne Langer has observed, a vocabulary of elements plays no part. Lastly, it established the doctrine that this vocabulary must consist of tectonic elements corresponding to what in traditional structural systems are called 'vernacular'; a name used because the elements were established by local craftsmen on purely practical grounds, and assembled in accordance with the requirements of functional plans.

The only problem to decide was what, in the 1860's, corresponded to 'vernacular' building, and it is to James Fergusson's credit that he seems to have been the first to perceive that the supersession of traditional building materials and techniques by the new materials and techniques of the Industrial Revolution was precisely the reason why any New Architecture was really necessary at all. The new vernacular, he said, was to be found in the works of the engineers, since these were the people who now followed 'the commonsense principles which guided builders in all previous ages.' If the architectural profession were to be properly organized, the engineer would merely be 'the architect who occupied himself more especially with construction and with the more utilitarian class of work.' whilst the architect, properly so called, would be 'the artist who attended to the ornamental distribution of buildings, and their decoration when erected.'[6]

The fact that no New Architecture appeared until the very end of the nineteenth century, despite the hopes placed in frames of cast and wrought iron, was a result of the fact that no radical technological innovation was economically utilizable as a complete structural system until steel frames and reinforced concrete frames (i.e. frames in which the vertical as well as the horizontal members were resistant to tensile stresses) were introduced after 1880. Even then, the need to cover steelwork with fire-resistant faience, and the difficulty of making concrete surfaces homogeneous, encouraged an even greater use of ornament, whilst providing the most convincing justification for separating the concept of ornament from that of the structure which it concealed. But between 1900 and 1950 a highly complex and varied vocabulary of new and elegant structural components was gradually evolved, until at the present day the nineteenth-century dream of a new tectonic 'vernacular' has become a reality. The problem now is: has this vocabulary become so rich that architecture can be produced by merely combining these tectonic elements into the most rational and economical arrangement required by a particular programme, or does the essence of architectural composition still consist of honest straightforward building plus something else?

In the 1920's and 1930's, the pioneers of our own architecture seem to have had only a vague presentiment of the difficulties which this problem would eventually produce. In 1935, Walter Gropius accurately recorded that the 'first or rationalizing stage' of modern architecture was only 'a purifying process,' and that the ultimate goal was the 'composite but inseparable work of art, the great building, in which the old dividing line between monumental and decorative elements will have disappeared for ever.'[7] But being unwilling, because of his rejection of history, to refer to any historical precedents, his only hint as to the nature of this new monumentality, of the *differentia* which would distinguish monumental architecture from just good plain building, was merely that it would be found 'in those simple and sharply modelled designs in which every part merges naturally into the comprehensive volume of the whole,'[8] a definition which at best only paraphrases the standard classical aphorisms enunciated from the time of Alberti to that of J. F. Blondel.

Le Corbusier's early writings appear more helpful, since he not only distinguished between the 'engineer's aesthetic' (which produces only harmony) and the 'architect's aesthetic' (which produces both harmony and beauty), but made specific recommendations as to how this beauty was to be attained. Yet even Le Corbusier's speculative contribution has turned out to be largely illusory, for he has now abandoned his early system of 'regulating lines' (which was in fact little different from the standard method of proportioning then used at the Ecole des Beaux-Arts), whilst his latest buildings clearly owe nothing to the machine-precise profiling, or *modénature*, which he recommended as exemplified in the Parthenon. *Towards a New Architecture*, with its constant appeal to the authority of ancient temples and churches of various historical periods, in fact made little methodological advance on nineteenth-century Eclecticism, whilst his deliberate omission of Gothic monuments brought the historical basis of his theory completely in line with that of the devotees of Queen Anne.

Probably the only really frank examination of this problem within the last century has been that formulated during the Queen Anne Revival itself by Robert Kerr, professor of the Arts of Construction at King's College, London, and one of the most caustic critics of the architecture of his age. In a lecture given at the RIBA in January 1869, he put forward the view that since architecture was obviously just a dress by which the artist's pencil, like a magician's wand, transformed a structure from a dull lifeless piece of building into something eloquent, it ought more fittingly to be called the Architecturesque. This dress was constituted, he said, primarily by ornament, the desire for which, more than anything else, separated the intelligence of man from that of the lower animals, and urged him to strive after perpetual novelty. What people had been in the habit of calling 'the principles of architectural design' were simply the principles of

[6] James Fergusson: *ibid.* vol. III, p. 474.

[7] Walter Gropius: *The New Architecture and the Bauhaus* (1935), p. 44.

[8] *Ibid.*, p. 32.

architecturesque treatment. Good architecture was true architecturesque, bad architecture spurious architecturesque, and the means of obtaining both were fourfold: structure ornamentalized (or rendered in itself ornamental), ornament structuralized (or rendered in itself structural), structure ornamented, and ornament constructed.

Now preposterous as Robert Kerr's argument may seem, his terminology is not inappropriate to some of the more publicized monuments of to-day. There can be no disputing the fact that architecture is becoming increasingly 'ornament structuralized,' if not 'ornament constructed,' for the whole trend of Le Corbusier's powerful influence has been moving in this direction for some time, and is now bearing fruit on both sides of the Atlantic. Is Chandigarh an example of what J. M. Richards once called 'the sincerity which is at present architecture's special virtue, and the inevitability which it gets from its appearance being so closely related to its structure'?[9] If so, we should examine carefully what we now mean by 'structure.' Or must we admit, to continue Richards's phraseology, that modern architecture is becoming 'merely decorative, an imitation of itself?'[10]

It has long been recognized that the ideal of creating monumental architecture solely by the consideration of our own requirements, the state of society, climate and materials is quite impractical without some additional quality which, in fact, is nothing more nor less than the artist's creative intuition. This must either order, proportion, refine and embellish a basic economic structure and composition, or create shapes which greatly transcend the mere economical fulfilment of practical needs. But refinement and adornment were both included in what the eighteenth- and nineteenth-century classical theorists understood by 'ornament,' as when the Abbé Laugier wrote: 'the flutings and other enrichments with which the sculptor's chisel charges different elements are true ornament, because they can be accepted or suppressed without altering the nature of the Order.'[11] By rejecting the idea of 'ornamentalized and ornamented structure,' and disregarding the principle enunciated by Fénélon when he remarked (concerning the superiority of classical architecture over gothic) that 'one must never allow into a building any element destined solely for ornament, but rather turn to ornament all the parts necessary for its support,' we seem to have been led to adopt 'structuralized and constructed ornament,' and this charge was levelled against Le Corbusier and his friends as early as 1925: 'Nobody speaks now of anything but straight lines, essentials and construction; but if one looks closely, it is obvious that ornament is still the only thing that matters, so that there are finally more useless things than ever before. These useless elements are so rigid and bare that the uninitiated assume them to be necessary; thus the error is all the more serious for being dissimulated.'[12]

One cause of the present luxuriation in suspended concrete awnings and extravagant concrete roofs has lain, initially, I think, in too hastily rejecting nineteenth-century rationalist principles when discarding nineteenth-century imitative practices. As a result, all the leading post-1930 theorists except Mies van der Rohe threw away the baby with the bathwater. The great mid-nineteenth-century rationalists, such as Charles Barry in England, and Henry Labrouste in France, had applied the right principles to the wrong materials, an error for which they were hardly to blame, because the proper materials had not yet been perfected. But the twentieth-century theorists, following the lead given by Etienne-Louis Boullée a century before, not merely rejected superfluous ornament and the tyranny of past styles; they rejected also the classical definition of architecture as 'the art of building,' claiming that Alberti and his successors had foolishly mistaken the cause for the effect. They did not, like Boullée, preface their treatises with the words *ed io anche son pittore*, but they might fittingly have done so, for the principles they substituted were mainly concerned with light, shade and space.

Their reason for doing this must, I think, be obvious. During the nineteenth century, architecture had been brought into disrepute by the archæologists and antiquaries, whose wrangles had culminated in the Battle of the Styles. To avoid the same error, the theorists who tried to create a New Architecture sought to avoid all references to the history of architecture. But if one cannot theorize with reference to the architecture of the past, one cannot theorize about architecture at all. The only alternative is to rely in analogies. The French and English theorists of the nineteenth century sought analogies with biology, machinery, speech and, in at least one instance, gastronomy. But the leading German theorists of the twentieth century, perhaps through a Spenglerian fascination for 'space,' and a mystical attachment to the philosophical notion of 'architectonics,'[13] preferred an analogy with painting, sculpture and industrial design, especially when these so conveniently developed into 'abstract art.'

The theory of those who, pursuing the ideals of nineteenth-century rationalism, opposed this attitude, is not easy to define with certainty, because its exponents were usually taciturn men, who felt that a few epigrams were quite adequate to explain their work to those who really wanted to understand. But its general principles can, I think, be summarized under three headings corresponding to the planning, construction and appearance of buildings, or, if one prefers, to the Vitruvian categories of commodity, firmness and delight. As regards 'commodity,' they believed that since the purpose of architecture is to create useful, interesting, varied and harmoniously related spaces, urban architecture is superior to rural architecture because it not only defines indoor spaces, but also combines to create plazas, courtyards and streets. Thus, even when developing new cities, they were led to study the appearance of buildings in terms of contiguously aligned façades. It may be true that 'the basis of the Victorian view of architecture was as large-scale sculpture,'[14] but such sculpture was not

[9] J. M. Richards: *An Introduction to Modern Architecture* (1940), p. 13 of revised ed.

[10] *Ibid.*

[11] M. A. Laugier: *Essai sur l'Architecture* (1755), p. xvi.

[12] Auguste Perret, quoted in *L'Amour de l'Art* (1925), p. 174.

[13] Cf. the quotations from Muthesius' *Stilarchitektur und Baukunst* (1902) given by Reyner Banham on pp. 73-76 of *Theory and Design in the First Machine Age*: e.g. 'the re-establishment of an architectonic culture is a basic condition of all the arts &c.' (p. 76). In this wide sense, the term is clearly a garbled derivative of the penultimate chapter of Kant's *Critique of Pure Reason* (1781).

[14] J. M. Richards: *ibid.*, p. 26.

thought of as isolated in a void, or seen from above, like Malewich's 'Architectonics,' but as contributing to a perspective seen from the ground. The pioneers of contemporary architecture, under the influence of the 'Queen Anne' tradition (which based its theory of a 'vernacular' architecture on suburban villas), and of Constructivist sculpture, were unable to conceive of architecture except as isolated elements, visible from all round; and it is typical of the confused reasoning in *Towards a New Architecture* that, although virtually all Le Corbusier's published domestic projects were designed in this way, the historical example he uses to support his views (namely a Pompeiian house) exemplifies exactly the opposite principle, in that here the exterior has no visual significance, and all the open spaces on the site are obtained by means of courtyards inside.

As regards 'firmness,' the nineteenth-century classical rationalists realized that a minimal structure is not only unnecessary in small spans, but is probably incalculable, since the forces are so varied. Moreover, as Léonce Reynaud had pointed out, 'one must not conclude that all the parts of our structures must be submitted to the laws of mechanics, for it is evident that the prescriptions of science can lead to great difficulties of execution.'[15] But they considered that there should be an economical correspondence between the forces to be resisted and the structure designed to resist them,[16] and believed, like Viollet-le-Duc, that 'Construction, for the architect, is the employment of materials with the preconceived idea of satisfying a need by the simplest and most solid means.'[17] At the end of the last century, and at the beginning of this, they used frames rather than elaborate cantilevers, because the leading building contractors had shown these to be the most economical way of erecting multi-storey buildings when no question of aesthetics was involved. They were not unmoved by the sight of great halls built for international exhibitions, but they did not regard their roofs as structural paradigms for spaces of a fifth the span.[18] Similarly, they would have studied an engineer's architectural structures, rather than his bridges, if they had wanted to apply his principles to the problems they were studying themselves.

As regards 'delight,' the nineteenth-century classical rationalists believed that the only difference between architecture and plain, honest, straightforward building was that architecture was both sensitively proportioned and pleasingly detailed, whereas plain building was not. In this their ideas seem to have been in harmony with those of every other period of European architecture, except the Italian Renaissance and the German Baroque. If we compare an early stone cotton mill (such as the mill at Curbar illustrated in J. M. Richards's *Functional Tradition in Early Industrial Buildings*) with any of the really important classical rationalist buildings in England, such as Charles Barry's Bridgewater House, we can see that the differences have nothing to do with 'the trappings of the historical styles,' but are simply due (apart from variations in size and plan, resulting from the difference of function) to the fact that the apertures and volumes are more carefully proportioned, and the surfaces more carefully worked. If we take the worst possible French example, namely Garnier's Paris Opera House (which even in its own day was criticized for its excessively Italianate Renaissance and Baroque polychrome ornamentation), we see that in the one part comparable in composition and plan to the mill at Curbar—namely the six-storey administrative office block which constitutes the northern end—a similar policy has been observed. And whatever one may say of the rest of the Paris Opera House, there is no doubt that unlike Boullée's or Utzon's designs for opera houses, this building can be clearly seen, by its compositional elements, to be a theatre, and by its detailing to be the most important theatre in the state. As J. F. Blondel once observed, the more accurately we can express the relative importance and function of buildings by this means, the closer are we to achieving 'that infinite variety between different buildings of the same type or of different types' which is the essence of style. 'Style, in this sense,' he explained, 'is like that of eloquence; it is the poetry of architecture.'[19]

The mid-Victorians, who hated insipidity, were usually over-fond of ornament (which they regarded as the natural expression of wealth), but even so, the best architects who pandered to their tastes realized that the essential difference between architecture and plain building lay not in complexity and extravagance (whether this be thought of in terms of construction or of the interpenetrations of space) but in proportion, refinement, and, if appropriate, adornment. As a result, their buildings have a scale and tactile richness which can only be appreciated by walking amongst them, and looking at them close to. The best urban buildings of the nineteenth century are seldom very interesting when seen from the air. They certainly have not the same compositional interest which models of important modern buildings usually possess. But at ground level they have a warmth and humanity found in the best architecture of all ages except our own, and this is becoming more and more obvious as old and new buildings become more frequently juxtaposed.

It is no longer possible to use the word 'ornament' in Alberti's sense of an 'auxiliary brightness,' because this word, thanks to Adolf Loos, is now regarded as obscene. But there is no virtue in banishing obscenity from our vocabulary unless we also banish it from our practices, and if we have no choice, as seems likely now, between ornamenting our structures or constructing abstract ornament, it is perhaps time we seriously revaluated nineteenth-century rationalism in terms of the potentialities of the second Machine Age.

[15] L. Reynaud: *Traité d'Architecture* (1860 ed.), p. 6. It is in the writings of Reynaud, Choisy, and other mid-nineteenth century professors of architecture at the French Engineering schools (Ecole Polytechnique, Ecole des Ponts et Chaussées, Ecole de Génie Militaire) that the clearest exposition of classical rationalist principles is to be found.

[16] P. L. Nervi foresaw that the proportions of Utzon's design for the Sydney Opera House would have to be changed. 'The fact is that this building is an eloquent example of the most open anti-functionalism in statics and construction, and a consequence of the arbitrary nature of their forms, which clearly run against the laws of static construction. One can easily imagine the brilliant feats of calculus, technique, and the *waste of materials* which will be necessary, *even if they succeed without substantial formal and other modifications*, in keeping it standing.' *Casabella* (July 1959).

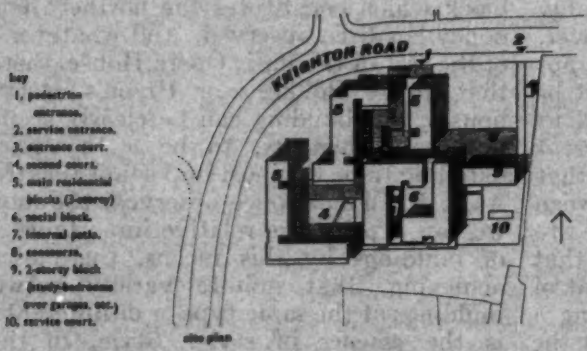
[17] E. Viollet-le-Duc: *Dictionnaire Raisonné de l'Architecture Française, XIe-XVIe siècle* vol. iv, p. 1.

[18] It is now almost a tradition for the leading architectural historians to speak slightingly of Perret's use of reinforced concrete frames in multi-storey buildings, by contrasting them with some other designers' spiral stairways, winch towers or 200-ft.-span vaults. But it is obvious, from the evidence of Perret's own work (e.g. the stairway in his own office, the reservoir tower at Saclay, and several of his single-storey buildings) that he himself avoided frame construction where it was inappropriate. The continued popularity of frame construction among building contractors for multi-storey offices and apartment blocks suggests that it is still one of the most efficient systems in its proper place.

[19] J. F. Blondel: *Cours d'Architecture* (1771), vol. iv, p. iv.

The vast expansion of university education now taking place in Britain demands not only new teaching accommodation but a greatly increased amount of living accommodation for students, only a small proportion of whom can be—and perhaps should be—housed in lodgings. The accepted answer is the hostel or Hall of Residence, and nearly all British universities are now putting up buildings of this kind as near to the main university buildings as the difficulty of finding sites allows. Though some of these buildings are very disappointing architecturally—for example at Nottingham and Durham—several that show both original thought and quality of design have recently been completed. Two such buildings are illustrated on the following pages, both—as it happens—for women students and both exemplifying the tendency to plan buildings for this purpose that are a good deal more than mere dormitories; that are self-contained units with social as well as living accommodation, capable of giving them some of the character and resources of the residential colleges familiar in the older universities.

TWO UNIVERSITY HOSTELS



1. COLLEGE HALL, LEICESTER

architect, J. Leslie Martin
(In association with Trevor Dannatt)

This is one of several halls, built or projected, occupying the large gardens of old houses in an inner suburb within easy reach of the central university buildings. It accommodates 170 students, a warden, bursar and academic and domestic staff. The dining hall is, however, capable of seating 250, so that undergraduates living in nearby university houses may dine in the hall.

The site slopes gently to the south; the north and west boundaries are skirted by a busy road and an enclosed type of plan was considered desirable.* Three residential blocks enclose two linked courtyards. The social block is placed so that it forms the fourth side to both these courts. This arrangement makes it possible to build a third court if ever this should be desirable as an extension of a two-storey partly residential building for domestic staff, etc.

The residential blocks surrounding the courts are three storeys high and contain study-bedrooms of various types, but generally in the region of 115 sq. ft. in area. The buildings enclosing the courts have corridor access to rooms from staircases placed in the angles of the blocks. Wings running east-west have service rooms (bathrooms, wash-basins, w.c.s and pantries, etc.) on the north and south-facing rooms with balconies. Where wings run north to south there is a central corridor with rooms facing east and west and service rooms grouped at opposite ends of the corridor. There are no north-facing rooms. Rooms are planned in groups of eight related to service accommodation. Externally, and because of this plan arrangement, the enclosing walls of each court vary considerably; the north-facing walls contain little window space whereas the south-facing walls on the opposite side of the court are opened up by projecting the cross-walled load-bearing construction and providing balconies.

In contrast to the residential buildings (which are of load-bearing brick with concrete floors and flat timber roofs), the social block has a reinforced concrete frame to permit wide spans and to allow more freedom in planning. For visitors arriving by car, a covered way, leading to the entrance, extends along the north face of the building facing the first court, across which is the main access for pedestrians. The social building is planned round an open-ended internal court associated with the entrance hall. The social rooms are on either side of this patio and consist of a junior common-room and library to the west and the main dining-hall and senior common-room to the east. The upper floor of this social building consists of smaller self-contained units of accommodation with separate access: e.g. the warden's flat, rooms for the bursar and senior domestic staff, music-rooms, games-rooms, etc. These rooms are approached by public or private staircases and are planned as a series of roof pavilions cut off from each other by terraces. A large terrace outside the music-room can be used for outdoor concerts.

External brickwork is a white sand-lime brick and the windows have varnished oregon pine frames. The timber fascias are zinc-faced. The concrete frame to the social block is left untreated from a plywood shutter. The lower part of this building is opened out by large windows and all the rooms at first floor level which form the roof pavilions are of light non-framed construction, consisting of timber mullions above cill level on the perimeter and load-bearing lightweight block partitions.

Consulting engineers, Lawrence Kenchington & Partners. Quantity surveyors, Monk & Dunstone.

*See AR, January 1958 Preview number.





1

1, from the south, with the social block on the right. 2, close-up of south elevation of a residential block.

2



3



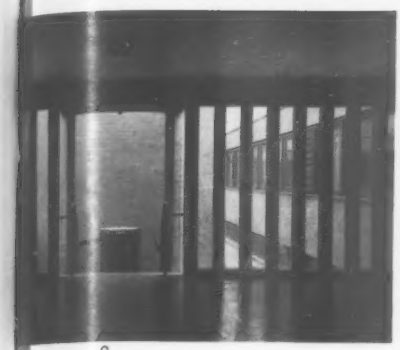
4

3, south-west corner of the social block; the library and senior common room are on the ground floor, with staff residential accommodation above. 4, view into courts showing repetition of south-facing blocks. 5, the social block from the west.

COLLEGE HALL, LEICESTER



5



6



7



8

6, top of the spiral staircase in the social block. 7, the social block patio; the staircase on the left leads to senior members' residential accommodation, the brick drum contains the spiral staircase. 8, looking out from the dining hall into the patio. 9, the entrance hall with the patio behind and the foot of the spiral staircase on the left.

9

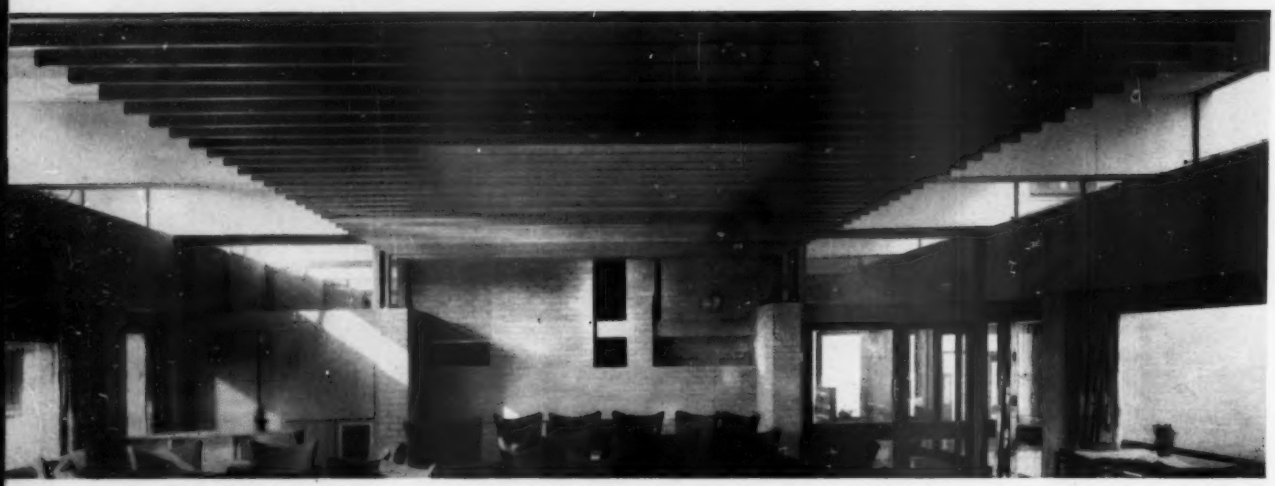




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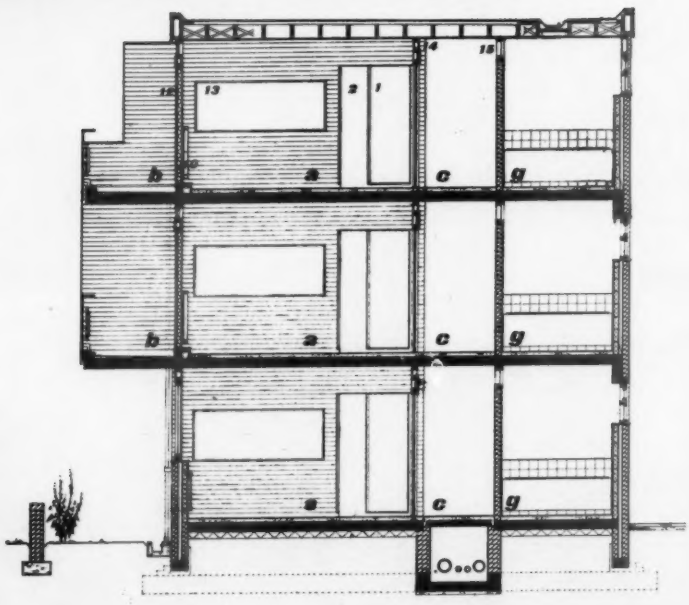


11



12

10, the enquiries desk in the entrance hall. 11, the fireplace in the junior common room. 12, general view of the junior common room.



section through south-facing residential block

0 8 FT.

key

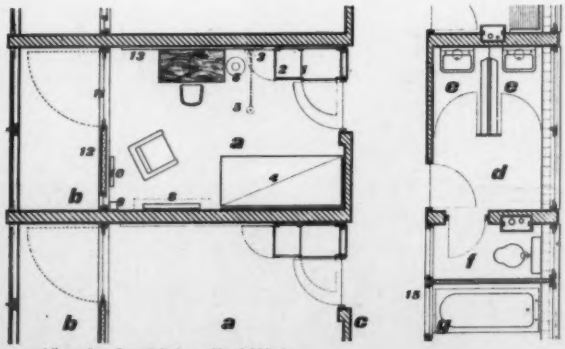
a. study-bedroom.
b. balcony.
c. corridor.
d. lobby.
e. washroom.
f. w.c.
g. bathroom.

1. wardrobe.
2. drawer unit.
3. door with mirror and make-up tray.
4. divan.
5. movable light.
6. movable standard lamp.
7. desk.
8. electric fire, bookshelves.
9. meter and time switch.
10. radiator.
11. glazed door in two leaves.
12. solid panel.
13. pin-up board.
14. ventilation shutter.
15. clerestory between cross walls.

13, residential block in the entrance courtyard (see plan and section on the right).



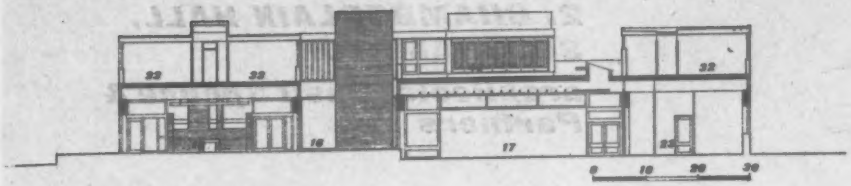
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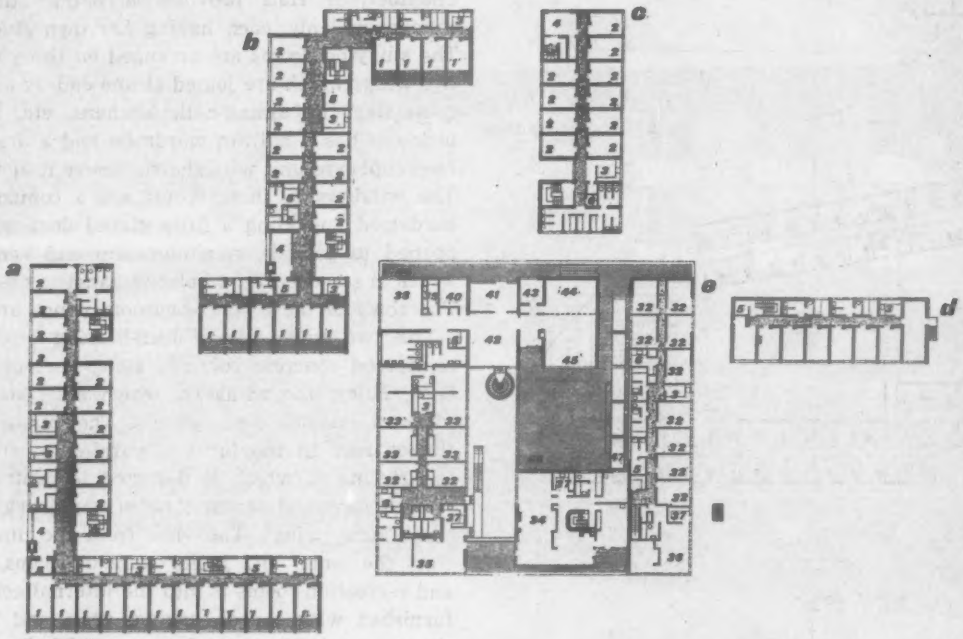
ground floor plan of south-facing residential block



COLLEGE HALL, LEICESTER



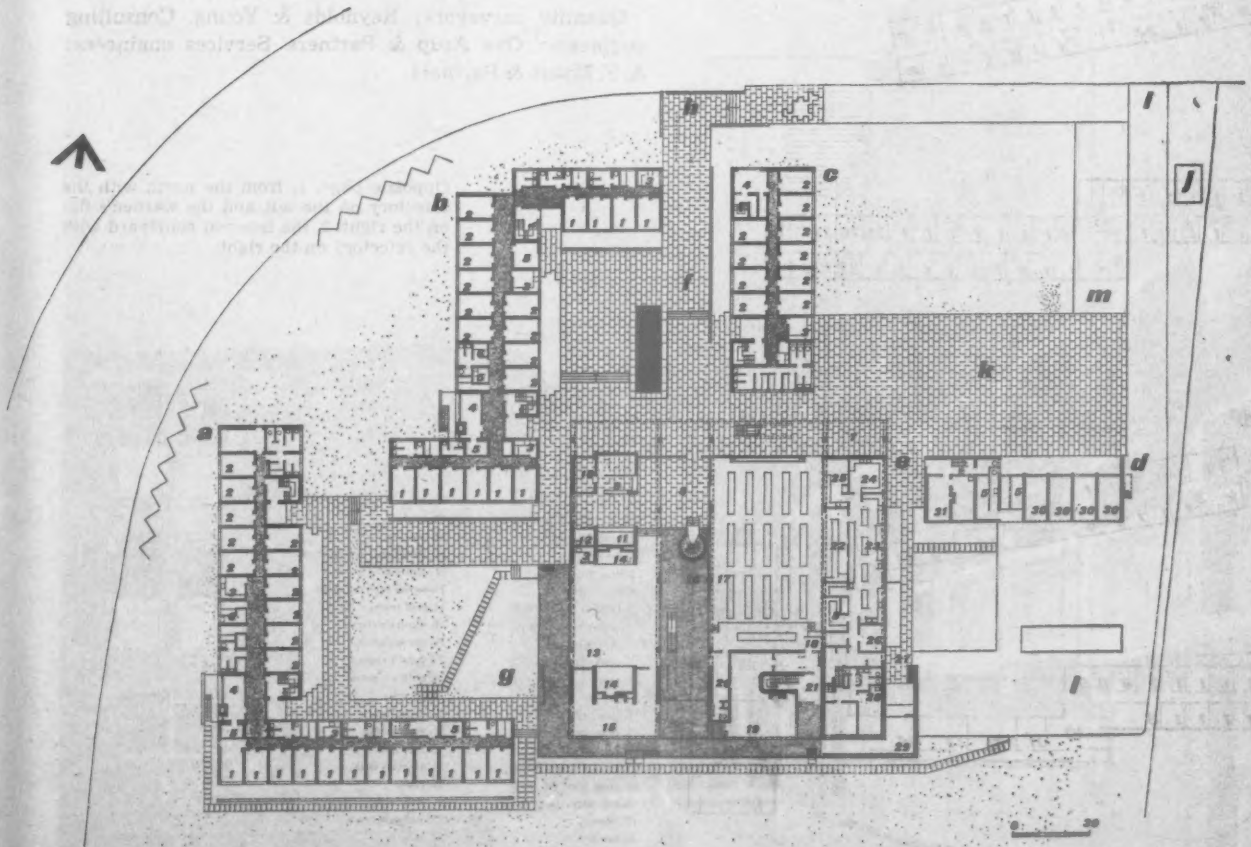
section through social block



first floor plan

key

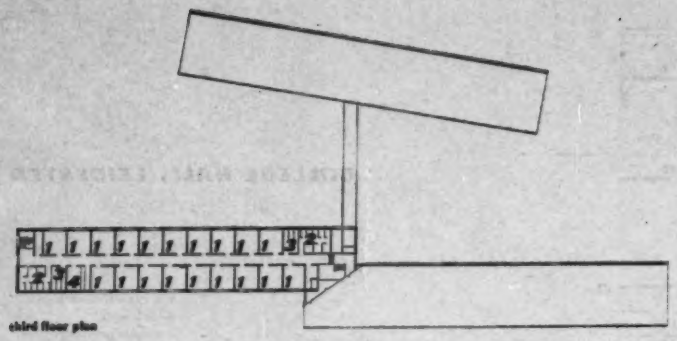
a, b, c, d, residential blocks.
e, social block.
f, entrance courtyard.
g, second courtyard.
h, main entrance.
i, service entrance.
j, sub-station.
k, concourse.
l, m, parking.
1, south-facing study-bedrooms.
2, east-and west-facing study-bedrooms.
3, tea-making rooms.
4, ironing rooms.
5, stores.
6, HMC's.
7, colonnade.
8, entrance hall.
9, enquiries.
10, office.
11, shop.
12, dispensary.
13, junior common room.
14, fireplace recesses.
15, library.
16, patio.
17, dining hall.
18, high table.
19, senior common room.
20, lobby and cloaks.
21, warden's entrance.
22, servery.
23, main kitchen.
24, wash up.
25, pantry.
26, bursar's office.
27, service entrance.
28, staff.
29, area.
30, garages
31, portress.
32, study-bedrooms (social block).
33, senior members.
34, warden's flat.
35, deputy warden's flat.
36, bursar's flat.
37, domestic kitchens.
38, small library.
39, dark room.
40, sewing room.
41, small junior common room.
42, upper concourse.
43, practice room.
44, listening room.
45, recital room.
46, roof terrace.
47, roof lights over dining hall.



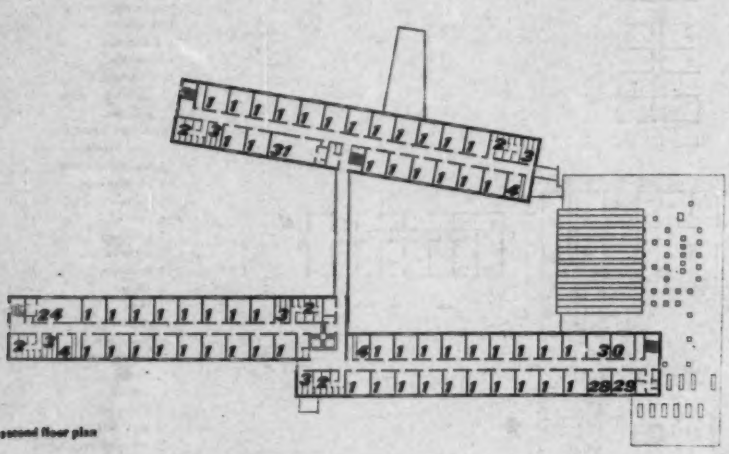
ground floor plan

2. CHAMBERLAIN HALL, SOUTHAMPTON

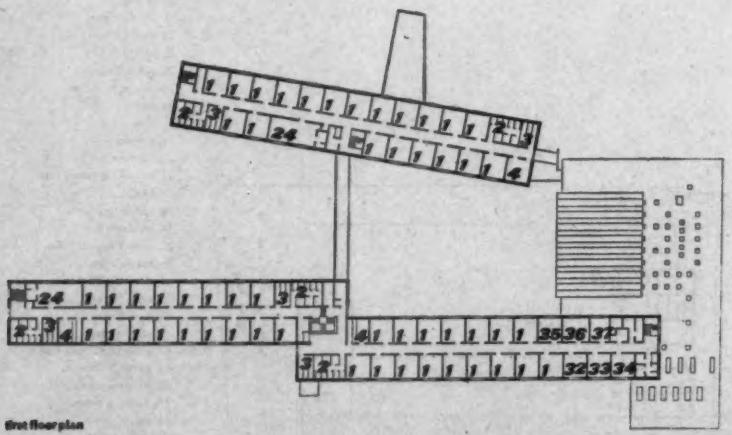
architects, Basil Spence & Partners



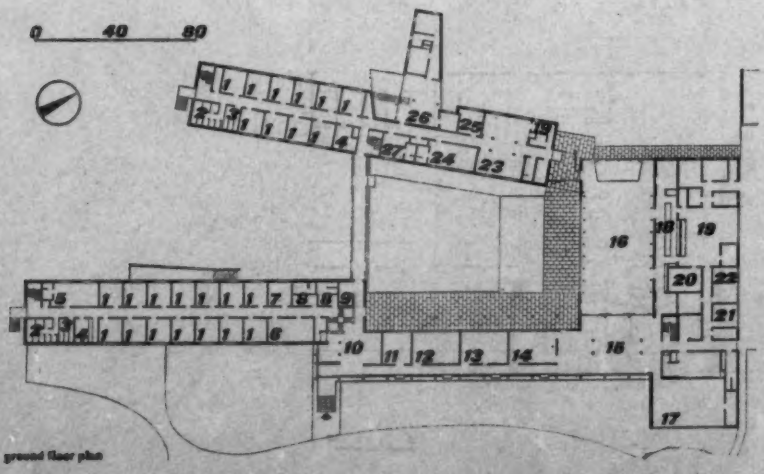
third floor plan



second floor plan



first floor plan



ground floor plan

key

1. study-bedrooms.
2. bathrooms.
3. w.c.'s.
4. laundries.
5. bursar's living room.
6. bursar and assistant bursar.
7. sewing rooms.
8. cloakrooms.
9. caretaker.
10. entrance hall.
11. music room.
12. committee room.
13. recreation room.
14. small common room.
15. large common room.
16. refectory.
17. library.
18. servery.
19. kitchens.
20. wash-up.
21. senior staff dining room.
22. staff dining room.
23. senior common room.
24. staff room.
25. warden's room.
26. warden's flat.
27. guest's room.
28. assistant bursar.
29. porteress.
30. maids' rooms.
31. vice-warden.
32. matron.
33. assistant cook.
34. cook.
35. sick room.
36. isolation room.
37. surgery.

The study-bedrooms are arranged on three floors in the two wings which are joined at one end by a lower block containing the dining-hall, kitchens, etc. Each study-bedroom has a built-in wardrobe and a dressing/desk/food cupboard-unit with shelves above it along one wall. The windows to these rooms are a composite unit in hardwood, including a fully glazed door which can be opened to provide maximum sun and ventilation but which is screened by a balcony panel to ensure privacy. The roofs of these study-bedroom wings are of copper.

The two wings are of load-bearing brickwork with reinforced concrete columns along part of the ground floor. Below the windows, which have slate cills, are vitreous enamel steel panels. The dining-hall has a timber roof in the form of parallel inverted troughs, the outline of which is designed to contrast with the smooth face and warm tone of the brickwork of the three-storey wings. The view from the dining-hall and from the senior and junior common-rooms, music-room and recreation-rooms is into the internal court, which is furnished with a pool, paving, grass and flowers. The site possessed some good trees, which have been preserved.

Quantity surveyors: Reynolds & Young. Consulting engineers: Ove Arup & Partners. Services engineers: A. F. Myers & Partners.

Opposite page: 1, from the north with the refectory on the left and the warden's flat on the right. 2, the internal courtyard with the refectory on the right.



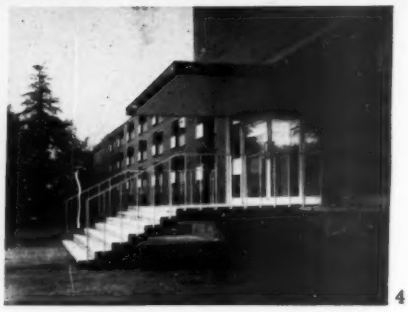
1



2



3



4

3, looking along the east elevation towards the main entrance. 4, close-up of the main entrance. 5, inside the internal courtyard looking towards the glazed link between the two study-bedroom blocks. 6, the junior common-room on the ground floor. 7, the split-level dining/sitting room of the warden's flat in the west wing. 8, built-in dressing table and wardrobe unit in a typical study-bedroom.

5





6



7



8

CHAMBERLAIN HALL, SOUTHAMPTON

photographs by

Henk Snoek



1

It is owing to the connection between Britain and Portugal created and maintained by the port-wine trade that Oporto possesses a major building by John Carr of York—the Hospital of Santo Antonio, designed about 1770 and shown opposite—as well as other later buildings of an English Palladian character. These buildings—and Consul Whitehead who had much to do with them—are the subject of the article below. The view opposite, 1, is that of the north façade of the hospital.

René Taylor

THE ARCHITECTURE OF PORT-WINE

'Port,' remarked George Saintsbury in his *Notes on a Cellar Book*, 'gladdens as no other wine can do; and there is something about it which must have been created in pre-established harmony with the best English character.' The heyday of Britain's prestige and influence in the world coincided precisely with the period when it was acclaimed as the Englishman's drink *par excellence*, whether he were a fox-hunting squire, university don, a member of one of London's clubs or merely a charlady solacing herself, after her day's labours, with 'a port wine or two down at the old Bull and Bush.'

Though the wines of northern Portugal are known to have been imported into England as early as the sixteenth century, it was the Methuen Treaty of 1703, with its preferential tariffs, that really opened the English market to the vintages of the Upper Douro. By 1725 imports were running at the rate of 20,000 pipes yearly. At first port was probably not much more than a light table wine. It was not till later, particularly after the creation in 1757 of the *Companhia de Agricultura das Vinhas do Alto Douro* by the Marques de Pombal, king Joseph I's energetic minister, who delimited the vine-growing area and insisted that the wines therefrom should be reinforced with alcohol (much of it from his own estates), that port came to assume its present character.

It was thus that the export of wine became one of the main sources of Oporto's prosperity, and to-day it remains a city with a marked eighteenth-century air, the number and diversity of its buildings belonging to this period being an impressive indication of the funds that were available. It is characterized by steep, rather narrow, sombre streets; for granite is the usual building material. Many of its houses with their carefully ordered fenestration and pediments on the skyline are reminiscent of nothing so much as those of Georgian London. Entire rows of houses, though plainly built in the course of the nineteenth century, conform to this type. This English influence is most marked in domestic buildings, though it is also to be found in a number of public ones, such as the University and the Bolsa or Stock Exchange.

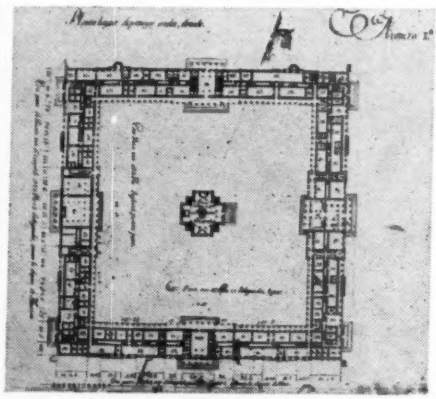
This development was certainly something new in Portugal, for though she had always maintained close political and commercial ties with England, dating from the alliance of 1373, her artistic connections had always been with Italy, France and Spain. The change began to come about in the 1760's and was almost exclusively confined to Oporto itself, there being little evidence of the spread of this influence elsewhere. Clearly, therefore, it was a phenomenon resulting from the close relations promoted by the wine trade. But this was also the period when the intellectual, artistic and industrial ascendancy of England was beginning to make itself felt throughout Europe. Thus, the Romantic Movement, both in literature and the arts, was an English creation. The Palladian style of building, from which ultimately the whole neo-classical spirit derived, originated in England in the early years of the eighteenth century. The English landscape garden was ousting the formal garden of the Baroque. English ideas on town-planning, public hygiene, road-building, engineering and kindred activities were being increasingly accepted abroad, and this trend was to be consolidated by the Industrial Revolution.

After about 1760 the Baroque, which had reigned unchallenged in Oporto for well nigh a century, began to lose ground, especially in the field of domestic architecture, though the Church, as was to be expected, continued to favour the older style. This change coincided with the governorship of João de Almada. He was a relative of Pombal and had been sent by him to Oporto in 1757 with the express purpose of bringing the city to heel after the popular insurrection against the minister's *Companhia do Alto Douro*. João de Almada had previously lived in Lisbon and no doubt had seen something of the plans for rebuilding the shattered capital after the earthquake of two years before. The style favoured there was a sober, academic classicism, mainly derived from the practice of Ludovice, the designer of Mafra. The new governor, as chairman of Oporto's public works committee, was destined to effect a considerable revolution in the city's lay-out and style of building, and it is to him and to his son, Francisco de Almada, that it very largely owes its

present character. Yet, behind them hovered another personality, that of John Whitehead, the English Consul, who was apparently a crony of the governor's. Almada, even before his arrival, must have been in favour of a simpler style of building after the fireworks of the Baroque, but it was undoubtedly the Consul who persuaded him that the English Palladian idiom afforded just the alternative he was looking for. Not only would it be less expensive, but it would be a classicism of unalloyed purity, which the Pombaline style of Lisbon was certainly not. Moreover it would be a style eminently expressive of the new secularism and 'enlightenment,' in opposition to the 'obscurantism' of the Church—let us not forget that Whitehead remained a 'true blue' Protestant to the end.

The immediate need was for a monument that should proclaim all the principles they sought to impose and at the same time serve as a model for local architects to follow. The opportunity presented itself in 1766 when the Misericordia decided to erect a new hospital. The Hospital of Santo Antonio at Oporto, designed by John Carr of York, has already been the subject of an article in these pages.* Though never completed as planned, it remains one of the city's finest monuments, 1. That the commission for the design should have gone to an Englishman instead of to one of Nasoni's pupils was almost certainly due to Whitehead. Both the latter and the English chaplain, the Rev. Henry Wood, took part in the negotiations between the architect and the board of the Misericordia. There seems, however, to be little justification for believing that the latter was palmed off with a design that had been made for London and had been rejected as too large, for Carr, in a letter from York dated November 5, 1769, expressly states that he had made a tour of England to see the country's principal hospitals before settling down at the drawing-board to work on the Misericordia's commission.

Only four of Carr's original drawings survive, but it is possible to form a very complete idea of the whole, both in plan and elevation, from copies that remain. The majority of these are plans drawn in 1777 by Manoel dos Santos Barbosa, but there are also three drawings showing the

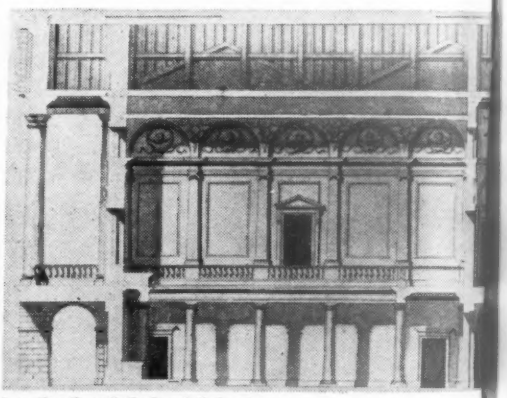


3, plan of the hospital of Santo Antonio; copied from John Carr's original by Manoel dos Santos Barbosa.

elevations of all the fronts, both interior and exterior, except the one which was actually built. The design for the latter went astray some few years ago, when it was used for the completion of the pediment and other details. These, though dated 1795 and 1796, are not signed. They can, however, be attributed to Joaquim da Costa Lima, who we shall have occasion to refer to further; for in the minutes of the Misericordia of January 28, 1793, there is a record specifying that the latter was to make copies of all Carr's originals, which had been allowed to become mildewed, 'owing to the skill he had acquired in the house of the English Consul who had made use of his services.' The most interesting feature of this entry is the emphasis it lays on his connection with Whitehead, showing that his home was something of a training ground for the new generation of Portuguese architects. It is obvious, too, that by the last decade of the century the board of the Misericordia had come to regard the Consul as the ultimate arbiter in matters of architecture.

These elevations, two of which are shown in 2, are splendidly executed, in contrast to the rough working drawings of Manoel dos Santos. They and the plan, 3, enable us to see how vast in scope was the original design, so that it is not surprising that the Misericordia never had the funds to complete it. They are of interest, too, in that they show in section the chapel and committee room that Carr had planned at first-floor level. The former, in particular, is completely alien to the Portuguese tradition of religious building, being a square box-like structure with a gallery running round three of its sides after the Anglican fashion, 4. These drawings also prove that the Kentian turrets with oval windows and pyramidal roofs, flanking the main portico, were not arbitrary modern additions as has sometimes been stated, but an integral part of the original design. In addition, they permit us to see what departures were made from Carr's plans in the course of their execution.

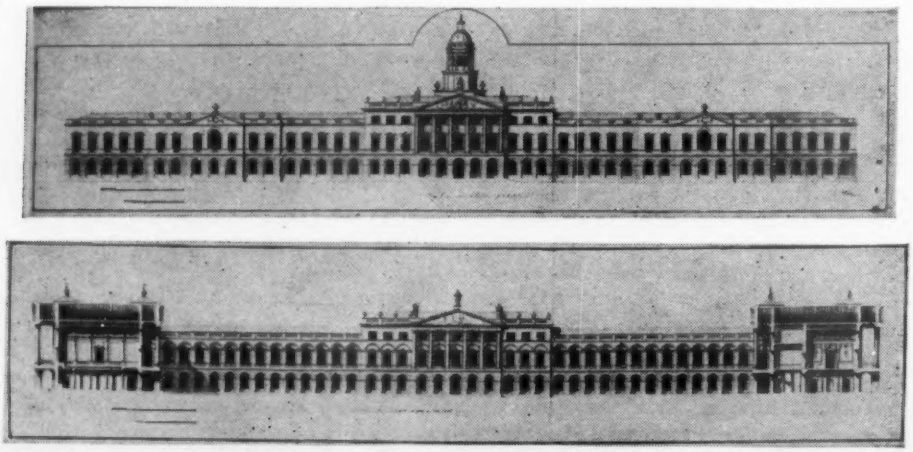
Though the main outer front, facing east, faithfully reflects the architect's intentions, the inner one was very severely truncated. The portico was suppressed



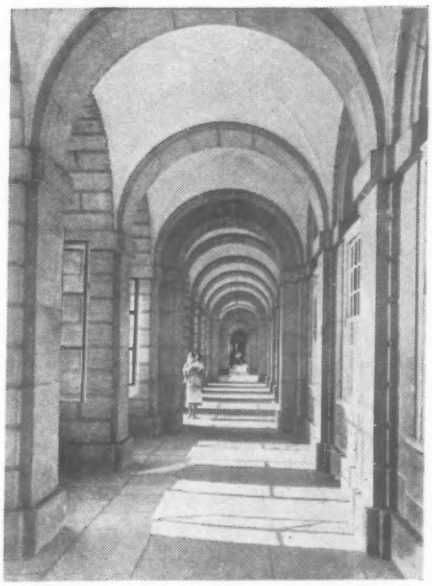
4, section through the hospital chapel.

entirely, probably in the interests of economy, leaving only an interminable succession of openings whose salient note is their monotony. The interior was likewise extensively modified, though it preserves the long covered gallery, 5, that Carr had planned to run all the way round. The main purpose of this gallery was, of course, to afford rapid access to all sections of the hospital, but it was also intended, so the architect tells us in the preamble he included with his designs, to serve as a kind of *brise soleil* that would protect the interior from the direct rays of the sun. Only one or two of the wards retain their original character, 6; recent advances in medicine and the need to provide up-to-date operating theatres, consulting rooms and a thousand and one specialized depen-

* 'Carr in Portugal,' by R. B. and Mary Wragg, AR, Feb., 1959.



2, the outer and inner fronts of the hospital of Santo Antonio at Oporto. The drawings are copies of John Carr's original designs.



5



6

Hospital of Santo Antonio, Oporto; by Carr of York: 5, the covered gallery; 6, interior of one of the wards.

dencies, not to mention the whole bureaucratic apparatus of a modern hospital, have inevitably forced changes upon its interior lay-out.

Yet another item of interest, to which Carr draws attention in his preamble, is the drainage system, which was to be effected by means of a great arched sewer running down the length of the entire building. It was designed so that it could be constantly flushed with water. The problem of ventilating the wards and dependencies was to be solved by shafts going up to the roof, giving a constant circulation of fresh air throughout the interior. Each storey was to be provided with its own individual water supply, pumps being used to raise it to the upper parts of the building. This would have been particularly necessary for the top floor; for this was the section reserved for the foundlings, of which there was always a large number, and the nurses that looked after them.

Carr's Hospital was the first and most important building in the English Palladian idiom to be constructed in Oporto. But it was by no means the only one. Its influence was consolidated, a few years later, by the erection of a second monument in the same style, likewise designed by an Englishman; this is the building known to-day as the *Feitoria Inglesa* or English Factory.

Consul Whitehead and the English Factory

The enormous growth of commerce in the later Middle Ages led to the establishment in most countries of Europe of communities of foreign merchants. These trading posts or *factories*, as they were called, were often the result of political ties and alliances, and it was not infrequent for them to be granted special privileges, such as that of being governed by their own laws. Examples abound. There was the Steelyard in London, where the merchants of the Hanseatic League had an important centre. The Venetians established similar posts in the eastern Mediterranean and further afield. In the fifteenth century the Portuguese had a factory first at Bruges and later at Antwerp, through which flowed the spices and luxuries that Portugal's caravels brought from the East. Trading relations between England and Portugal were favoured, not unnaturally, by their traditional alliance. An English factory is known to have existed in Lisbon from comparatively early times, though later the capital lost ground to the north as the principal centre of trade. This was chiefly due to the export of wines first from Viana do Castelo and later from the Douro valley, and to the catastrophe of the Lisbon earthquake, a blow from which—Pombal saw to that—it never recovered.

The existence of a British Consulate in Viana is recorded as far back as 1578, but the British Factory, forerunner of the one that still exists in Oporto to-day, did not come into being until 1654, as a result of the treaty between Portugal and Oliver Cromwell. Originally the Factory House seems to have shared premises with the Consulate. In 1711, however, with the growth of the port-wine trade, three houses were purchased and knocked into one with the object of providing a kind of headquarters and social centre for the British community. This was maintained by what was known as the Contribution Fund, which was a tax on wine and other commodities exported to England; it was levied with the sanction of Parliament on all British firms trading with the United Kingdom. In addition, it served to defray the stipend of an English chaplain, a doctor and a hospital, as well as to care for shipwrecked sailors and distressed British subjects. Though legally applicable only to English concerns, the tax was invariably exacted from Portuguese traders as well by the simple expedient of withholding clearance papers from those refusing to pay. There are records of complaints by Portuguese wine-shippers trading with Britain against this arbitrary procedure, especially as they, unlike the English firms, were excluded from the Fund's benefits and were not permitted to use the Factory House.

For seventy-five years the Factory continued to occupy the premises purchased in 1711. But as the century wore on and the British community prospered, the need for better quarters became pressing. It was, therefore, decided to demolish the existing structure and erect in its place a building more in keeping with the wealth and dignity of its members. This was begun in 1786 in accordance with plans prepared by Consul Whitehead himself, who also superintended its construction.

Mention has already been made of John Whitehead in connection with the Hospital of Santo Antonio. He appears to have been one of the leading personalities in the city of his adoption. Born in Lancashire at Ashton-under-Lyne in 1726, he was appointed Consul at Oporto in 1755 and continued to occupy the post until his death in 1802. He lies buried in the cemetery attached to the English church and his portrait, 7, hangs on the wall of the staircase in the Factory he planned and built.

The best description of Whitehead is to be found in Costigan's letters written from Portugal in 1778 and 1779.* Costigan was the Consul's guest during his stay in Oporto, so that he had every opportunity of getting to know him at close quarters. He describes Whitehead as kindly, informative and witty, living alone in a large house with none but an elderly housekeeper to look after him. Except for the hours absorbed by the duties of his office, most of his time was spent in study. He was a person who tried to live up to the



7, portrait of John Whitehead, British consul at Oporto from 1755 till 1802. It hangs in the English factory he planned and built.

* Capt. Arthur William Costigan *Sketches of Society and Manners in Portugal*, London, 1787.

Renaissance ideal of the 'universal man.' He was interested in all branches of knowledge and all fields of human activity: economics, physics, astronomy, geography, agriculture, architecture, mathematics, and so on. He possessed a vast and heterogeneous library that bore witness to the wide range of his interests. It contained numerous works on science and mathematics, which were the predominant interest of his life. He is known to have corresponded with the Academy of Sciences in Lisbon on a project to introduce uniformity into the system of weights and measures used in Portugal, a scheme which greatly interested the Marques de Pombal.

Whitehead also possessed two of the greatest globes that Costigan had ever seen, no less than four feet in diameter. They had been made under his direction by local craftsmen, of whom there were always four or five working in his house. On these globes he would introduce changes and modifications in accordance with the latest calculations available. He also used the *camera obscura*, that favourite eighteenth-century toy, and had invented a device to enable him to copy accurately the objects it reflected on the screen. Costigan further mentions that Whitehead possessed a number of solar microscopes and an apparatus for conducting electrical experiments. He had installed a lightning conductor on the roof of his house, consisting of a long iron bar embedded in a flower-pot with a length of chain dangling from the top end. This was sufficient to convince the ignorant that he was a sorcerer and dabbled in the occult arts. On one occasion, in a storm, a flash of lightning actually shattered the flower pot. This caused great consternation in the city; for it was alleged that the Consul could attract lightning at will. The matter was immediately reported to the Inquisition. Whitehead, however, had powerful friends and his quasi-diplomatic status afforded him a certain amount of immunity. The Holy Office, which by that time had had most of its teeth drawn, discreetly let the matter drop.



8, the wooden model of the design for the English Factory at Oporto, still preserved in the library.

In our context we are chiefly interested in Whitehead as the embodiment of the eighteenth-century Anglo-Palladian architectural observance. Yet he was more than just a knowledgeable amateur. By reason of his mathematical training he was able to put his theoretical learning into practice. Unlike Lord Burlington he actually directed operations on the site. This we know from more than one contemporary source. Unfortunately, however, all the Factory's records prior to the end of the Peninsular War are missing, so that nothing very positive is known about the builders and masons who worked on it, except for a few stray references. To Manoel Moreira da Silva is attributed all the carpentry and joinery work of the interior.

Whitehead's building is generally reckoned to have been finished in 1790. It certainly appears as completed in Aguilar's topographical view of Oporto dated 1791. The Factory occupies the north-western angle formed by the intersection of the Rua Nova de São João and the Rua do Infante D. Henrique, formerly known as the Rua dos Inglezes. The main façade, 9, which has a frontage of some 70 ft., gives on to the last named. The side elevation, seen on the right in 10, is about 20 ft. longer, but is divided into two sections, the further one housing the servants' quarters, kitchens and other dependencies. It gives the impression of being detached from the main body of the building. This is largely to be accounted for by the need to compensate for the steep fall in the level of the road, but it has the advantage of preserving the block-like integrity of the main structure. The whole building is on three floors, with the addition of a mezzanine between the ground floor and the *piano nobile*. The former takes the form of the inevitable Palladian rusticated loggia, divided in this instance into seven openings, their disposition being carried into the upper storeys.

The whole front is disarmingly simple, yet it avoids monotony by three expedients. First the architect advanced the central section very slightly; secondly he spaced the windows of this section a little more widely apart, surmounting those of the *piano nobile* with triangular pediments instead of segmental ones, and lastly he interrupted the balustrade on the skyline by the introduction in the centre of a rudimentary attic adorned with three swags of fruit. It was apparently also his intention to crown the composition with an impressive statue, of Britannia perhaps, but this never materialized. James Murphy,* however, who visited Oporto while the Factory was still being built, describes how the Consul filled three folio sheets of paper with calculations to determine the exact angle of inclination the statue should have so as to be visible to anyone standing at the corner of the street.

The side elevation is more perfunctory. The loggia has been suppressed, and the large windows have either straight canopies or no capping at all. The main section, however, is surmounted by a large pediment in uniformity with the other houses in the vicinity. The only two somewhat un-Palladian features of the composition are the mezzanine, which is comparatively rare outside the work of Sir William Chambers, and the wrought-iron balconies, the fashion for which had only just reached London from Italy. The wooden model preserved in the Factory, 8, shows that these were originally designed to be of stone.

A long entrance hall, 11, divided into three aisles, leads to the central staircase. It consists of a series of Tuscan pilasters and free-standing columns without entablature supporting shallow groin vaults. This hall was apparently known as the *Piazza* and was designed to serve as a parking place for the sedan chairs of the members, the benches round the walls being used by the bearers while they waited.

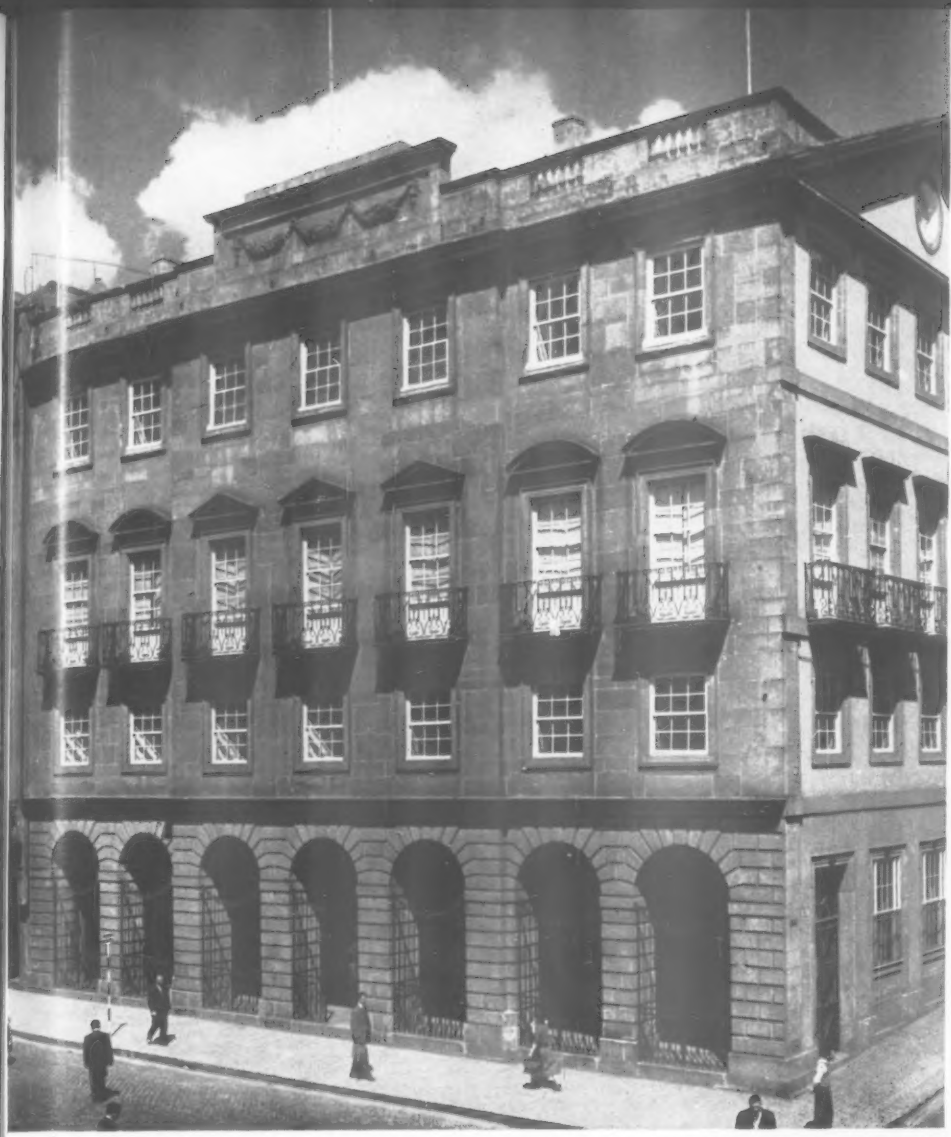
The newel staircase beyond, 12, is organized round a spacious open well; each step has been fashioned from a single piece of granite, embedded in the wall, as are the landings. Other than this, the staircase has no support of any kind. The wrought-iron balustrade and brass hand-rail were executed by local Portuguese craftsmen and match the style of the balconies on the exterior. The whole is lighted by a huge skylight, just below which hangs the portrait of Consul Whitehead.

The staircase leads straight from the ground floor to the rooms on the *piano nobile*, the intermediate mezzanine floor being reached indirectly. The latter contains the library, dating from 1817 and possessing some 15,000 books. There are also reading and writing rooms, in one of which is kept the wooden model of the Factory already referred to. Among other records preserved here is a visitors' book signed by many of Wellington's officers during the Peninsular War.

On the *piano nobile* are the four principal rooms of the house, namely the Dining and Dessert Rooms, 13 and 14, the Ballroom, 15, and the Drawing Room. The Dining Room normally holds about thirty diners. It is a long, low room, devoid of adornment, except for two built-in *vitrines* for china at one end and a very simple Adam-style overmantel. The other end opens out into the Dessert Room, which is of identical size and proportions. It is a tradition of the Factory that, whenever an important

[*continued on page 395*

* James Murphy *Travels in Portugal in the years 1789 and 1790.* London, 1795.



9 *The English Factory at Oporto, designed by John Whitehead and completed in* 1790: 9 *(above), the main façade (photographed before the recent erection of trolley-bus cables);* 10 *(below), showing also the side elevation with annexe containing servants' quarters, etc.*



10

Below, interiors of the English Factory at Oporto: 11, *the aisled entrance hall;* 12, *the open staircase with wrought iron balustrade;* 13, *the dining-room;* 14, *the dessert-room, designed as a withdrawing room for dessert and port after formal dinners;* 15, *the ballroom looking towards the gallery.*



11



12



13



14



15



16

16, *the kitchen at the English Factory at Oporto (see overleaf)—situated on the top floor of the building and top lit.*



17

17 (*right*), *English-style houses in the Rua de São João, Oporto, built at approximately the same time as Whitehead's Factory. Whitehead's scheme for improving the whole street was not carried out.*

18 (*below*), *the Praça da Ribeira, showing the arcaded buildings that have survived (though with added top storeys) from Whitehead's remodelling of the square, then the most important in Oporto, facing the River Douro.*



18

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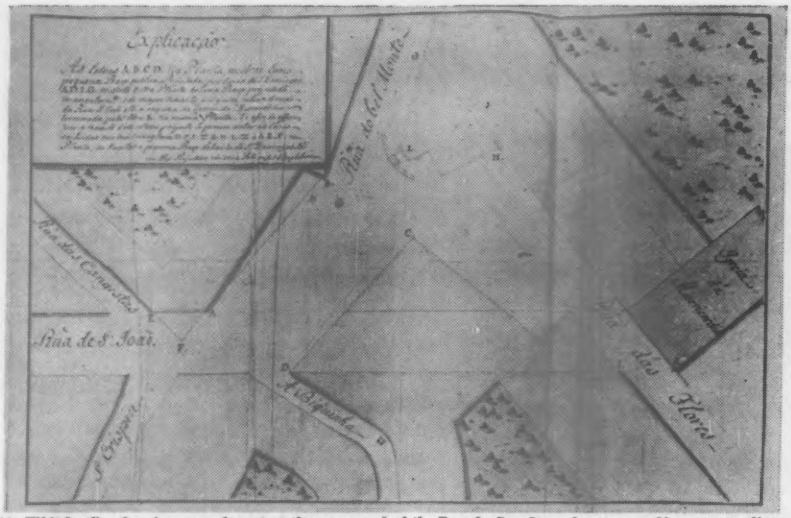
dinner is held, the diners proceed to this room so as to have their dessert and port at a fresh table and in a fresh atmosphere. At the present time a members' lunch is held once a week. Though only eleven port-wine firms own the Factory House, attendance at these lunches is so numerous that a part of the Dessert Room has to be used to accommodate all the would-be diners, this overspill being referred to as the 'House of Lords.'

The principal room, however, is undoubtedly the Ballroom. Ample and well-proportioned, it is articulated by means of an Ionic order of pilasters crowned by a full entablature, with a deeply coved ceiling above the cornice. It is lighted by three large windows, corresponding to the three openings with triangular pediments in the central part of the main façade, and by the three smaller windows of the top storey. At the opposite end is a kind of minstrels' gallery with three arched openings corresponding to the three upper windows just mentioned. Decoration is confined to the panels between the pilasters, which is little more than a distant reminiscence of the style of Adam, and to the sinuous garland that meanders round the ceiling. Formerly the flat part of the panels was coloured, against which the white plasterwork stood out. Recently, however, the whole has been painted an anodyne cream which robs the room of much of its personality. Notable are the great crystal chandeliers, identical to those in the Dessert Room. Similar in size and shape to the latter, but on the other side of the Ballroom, is the so-called Drawing Room. This is chiefly notable for a set of Chippendale chairs, said to be originals, but which may well be skilfully executed Portuguese copies.

Lastly, mention should be made of the enormous kitchen, 16, situated at the very top of the building. This is nowadays only used on great ceremonial occasions. Like the staircase, it receives its light from above. The most interesting items here are two immense cast-iron ranges of English manufacture, both hailing from London Bridge, which must have been shipped to Oporto in the very early days of the port-wine trade and may well have belonged to the first Factory building. One was made by Deane & Co., and bears the date 1700; the other bears the name of J. Evans of King William Street.

Whitehead and Town-planning

So far we have dealt with the English Factory as a building on its own. There is no doubt, however, that its construction formed but a part of an ambitious town-planning scheme. This aimed at a complete transformation not only of the Rua de São João, in which the Factory is situated, but also the approaches to it, in particular of the Praça da Ribeira, the principal square of Oporto at the time. Moreover, there is ample evidence to show that, as with the Hospital and the Factory, it was John Whitehead himself who was the mainspring of the whole project. In this, too, he was helped by the enlightened co-operation of João de Almada in his capacity as president of the city's Public Works Committee.



19, *Whitehead's plan for a new layout at the upper end of the Rua de Sao Joao, Oporto, roughly corresponding to the present Largo de S. Domingos.*

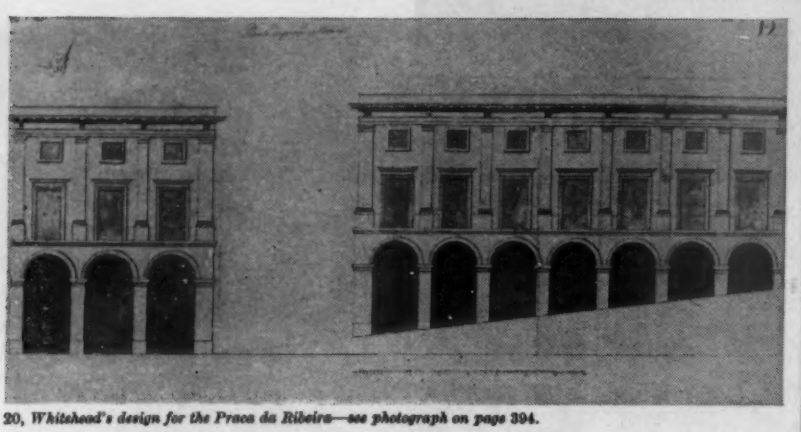
The idea was to give Oporto's main thoroughfare regularity and dignity in accordance with contemporary theories of town-planning. It was obviously not practicable to remodel the entire old city, with its maze of steep narrow streets dating from medieval times. Attention was, therefore, concentrated on the business section. At the same time the scheme aimed at providing an artery leading from the river front to the outlying districts to the north and north-east, many of which were then of very recent creation.

Unfortunately Whitehead's scheme for 'improving' the Rua de São João and the Praça da Ribeira was only carried out to a small extent. Our knowledge of its scope and implications is mainly derived from plans that have survived and from literary sources. A number of houses along the Rua de São João, particularly those close to the Factory, have pedimented fronts and discreet fenestration in the English style, 17, showing that they were built at approximately the same time as Whitehead's building. The total effect, however, has been marred by two deplorable nineteenth-century developments. The first is the indiscriminate addition of extra storeys to many of the houses, the second the widespread practice of sheathing the entire exterior in coloured tiles or *azuleijos*. As each owner has tended to choose the colour he fancied, the whole street has a piebald appearance.

Our knowledge of Whitehead's scheme is entirely due to the researches of Dr. Pinto Ferreira, director of Oporto's *Gabinete da Historia da Cidade*. He has published the relevant plans, together with a wealth of documentary material that can be no more than summarized here. It is clear that Whitehead regarded the Rua de São João as forming an axial unity not only with the Praça da Ribeira on the waterfront but with the north end of the street as well. This is demonstrated in a plan, preserved in the *Gabinete da Historia* which actually bears the caption *Foy projectado em* 1774 *polo consul d'Inglaterra.*

Whitehead's intention was to convert the small rectangular square at the upper end of the Rua de São João, roughly corresponding to what is to-day the Largo de S. Domingos, into a spacious triangular *praça* by eliminating such buildings as stood in the way. This small square is shown on the plan, 19, by the letters A, B, C, D; the proposed extension by the letters A.D.I.G. This would have allowed the splendid Baroque façade of the Misericordia (which, incidentally, the good Consul must have detested) to be seen from the Praça da Ribeira. The effect would have been similar to that of Nasoni's other masterpiece of religious architecture, the church of the Clerigos, standing impressively at the upper end of the street of the same name. But nothing came of it, so that to-day the front of the Misericordia continues to stand as cramped and invisible from the narrow Rua das Flores as when it was first built.

The remodelling of the Praça da Ribeira was a more ambitious undertaking. This square, fronting the river Douro, was the most important in the city. Nothing very positive is known about its original aspect, except that it was bounded on the southern or river side by an irregular length of wall, in all probability part of the medieval ramparts. The Consul's main preoccupation was to give the whole square an appearance of symmetry and regularity. To this end he fronted the wall with an



20, *Whitehead's design for the Praca da Ribeira—see photograph on page 394.*

arcade of eight arches, all of which were closed except one to the extreme west. This contained a stairway giving access to the quays. At the same time the top of the arcade provided a kind of riverside esplanade where the citizens of Oporto might take their leisure.

All this was demolished in the course of the nineteenth century. The north and west sides, however, have miraculously survived, 18. Unfortunately the latter has been disfigured by the addition of extra storeys, and the conversion of the open arcade into storerooms and shops resulting in the openings being filled in with doors, windows and patches of brickwork, completely vitiating the effect of depth and *chiaroscuro* that was originally intended. Two drawings in the *Gabinete da Historia*. a ground-plan and an elevation, 20, the latter initialled by João de Almada in token of his approval as head of the Public Works Committee, confirm that at this point the buildings were carried out as designed.

Nothing could be more disarmingly simple than this Palladian front, which depends for its effect wholly on its proportions and the careful relation of solids to voids. It is reminiscent of Inigo Jones's designs for Covent Garden and old Somerset House, though its immediate source of inspiration was probably the Palladian town houses of London of the first half of the eighteenth century. Certainly nothing could be more English than this west side of the Praça da Ribeira.

The construction of the front in question can be put at around 1780. It was certainly finished by 1784, as in that year the Committee issued instructions for the houses on the opposite side to be requisitioned and replaced by an exact replica of the one existing. Unfortunately, however, this was never carried into effect. At that time, too, the fountain at the north end, between the Rua de São João and that of the Mercadores, was nearing completion, though this feature with its elongated pilasters and florid decoration is unlikely to owe much to Whitehead. On the other hand, it fulfils an essential function in providing a *point d'appui* for the whole square.

Whitehead's activity in the Praça da Ribeira did not end with the remodelling of its south and west sides. He also intervened in the construction of the chapel of Nossa Senhora do O. This building occupied the extreme south-east corner of the square. It did not, however, stand at ground level but surmounted a monumental passageway that debouched into the Praça from the riverside, known as the Porta da Ribeira. The entrance to the chapel was reached by climbing the steps up to the esplanade on top of the city wall. When the wall and the passageway were demolished, the chapel inevitably disappeared with them.

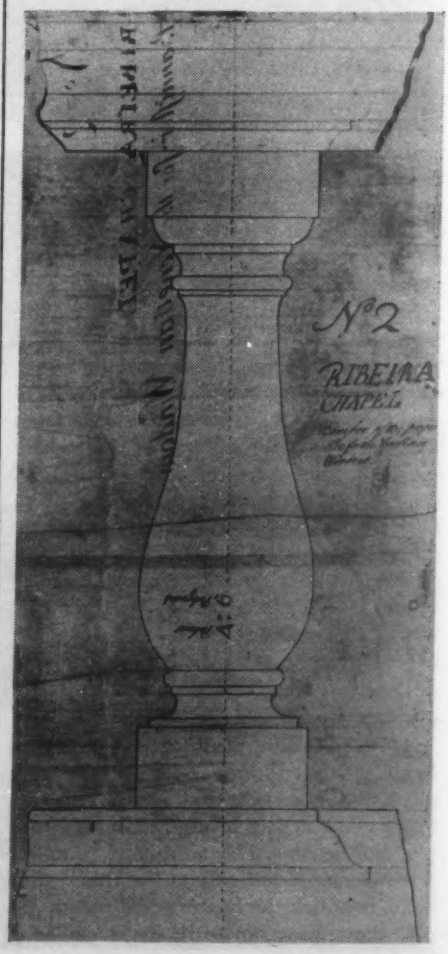
The Consul's intervention in this work is attested by yet another drawing in the *Gabinete da Historia*. This is a design for a baluster, 21. It bears the inscription, in English: *N° 2 RIBEIRA CHAPEL Banister of the proper size for the Venetian Window*. The handwriting is that of Whitehead himself. Moreover the presence of João de Almada's initials at the top of the sheet shows that it had been officially approved. Clearly, then, Whitehead had planned a Venetian window for the chapel of the kind that Carr of York had used in the Hospital. Beyond this we know virtually nothing about this building. The Porta da Ribeira is known to have been *de boa e bem trabalhada cantaria* ('of good and well executed masonry'), while the superstructure was uniform in aspect with the Palladian style of the remainder of the square. The interior was ornate and richly gilded.

The implications of Whitehead's ideas, particularly as affecting the reform of the Praça da Ribeira, have not been lost on Oporto's town-planners. Various projects have been developed, aimed at giving symmetry and regularity to this square. All return to his basic concept. Should the City Fathers ever take the matter seriously in hand, they could still not do better than revive Whitehead's original scheme. This would entail no more than the construction of an arcade of identical arches to the south, parallel to the river, the demolition of the storeys above the cornice on the west side, the suppression of the attic on the north side and the remodelling of the east side in the style of the existing west one, as originally intended. Such a reform, hallowed by tradition, would be relatively inexpensive to carry out, since one half of it already exists. It would be a tribute to a man much of whose life was dedicated to the service of Oporto—*in piam memoriam Viri Optimi et Bene Merentis*, as Whitehead's epitaph in the English Cemetery puts it.

The Aftermath

The influence of English Palladianism, introduced into Oporto by John Whitehead, lasted until well into the nineteenth century. The main figure concerned in its perpetuation was undoubtedly Joaquim da Costa Lima Sampaio, who was commissioned by the Misericordia in 1793 to copy Carr's plans for the Hospital on the grounds that he had been trained by the Consul. Few details are as yet known about his life. He was the son of a mason and in all probability played an important part in the erection of the English Factory. He was active as one of the municipal archi-

21, *design for a baluster for the chapel of Nossa Senhora do O.*



tects of Oporto until around 1830, when he appears to have been succeeded by his son. The latter had the same name as the father and was also an architect, which has inevitably given rise to some confusion between them. To the first named we owe the Palacio dos Carracas, the English church of Saint James and probably Messrs. Sandeman's Wine Lodge at Vila Nova de Gaia on the south bank of the Douro, while the son designed the Bolsa or Stock Exchange.

Sandeman's Lodge, 22, dated 1797, is particularly interesting because this is the only old-established firm of English port-wine shippers which has never moved from its original premises. The façade faces the river, and behind lie the *bodegas* where the wine is matured and stored. Though unpretentious, it is an engaging composition if only one can contrive to forget the horrible electric sign that defaces it. There is the inevitable loggia at street level, here consisting of five openings, surmounted by a plain upper storey with a small pediment in the centre. The interior, 23, consists of a succession of massive arches, parallel one to another, surmounted by a simple wooden roof, this being the usual arrangement for lodges of this kind.

In contrast to the dearth of information about Sandeman's Lodge, the story of the construction of the English church is known in considerable detail. In 1787 a tract of land was bought from the Prior of Cefodeita and conveyed to the English Consul, John Whitehead. The immediate object of this was to provide a much-needed English cemetery; at the same time it would provide a site for the erection of a chapel should the occasion ever present itself. Nothing materialized during Whitehead's lifetime. Then came the upheaval of the Napoleonic invasion and Wellington's campaigns in the Peninsula, from which the French were finally chased in 1813. Very shortly afterwards a new commercial treaty was signed between Portugal and Great Britain in which, by way of acknowledging the services rendered to the Portuguese crown by the English red-coats, the former granted permission for the erection of a number of Protestant chapels within its territories.

The earliest reference to the present building occurs in the minutes of the Contribution Fund for January 2, 1815, when a committee was appointed to 'draw up a plan and Estimate of expenditure.'

Approval having been obtained from the Bishop of London and from the Ambassador in Lisbon, who at that time was no less a person than the future Tory Prime Minister, George Canning, the committee approached Joaquim da Costa Lima to provide an estimate. It was decided that 'the large room at the Factory House should be taken as a model in point of proportion and dimension . . . sufficient to accommodate about 200 persons.' The estimate came to 5,200 milreis. It is significant that the committee made no attempt to obtain estimates from other sources, presumably because Joaquim da Costa's experience in building in the English style made him the obvious choice. By July 10 of the following year the structure was well advanced, but the committee gave notice that the original estimate was likely to be substantially exceeded, mainly due to a miscalculation on the part of the architect, for which 'the committee hold Senr. Joaquim da Costa highly culpable, but they are not of the opinion that his charges have been unreasonable or that he has put the Society to any unreasonable expence.' Though completed by 1817, the chapel was not consecrated until August 20, 1843.

The Church of St. James as it stands to-day, 24, bears but small relation to the original chapel built a century and a half ago. The addition of transepts and an apse has modified it almost out of recognition. The exterior, with its salient porch surmounted with a pediment and pilaster



24



25

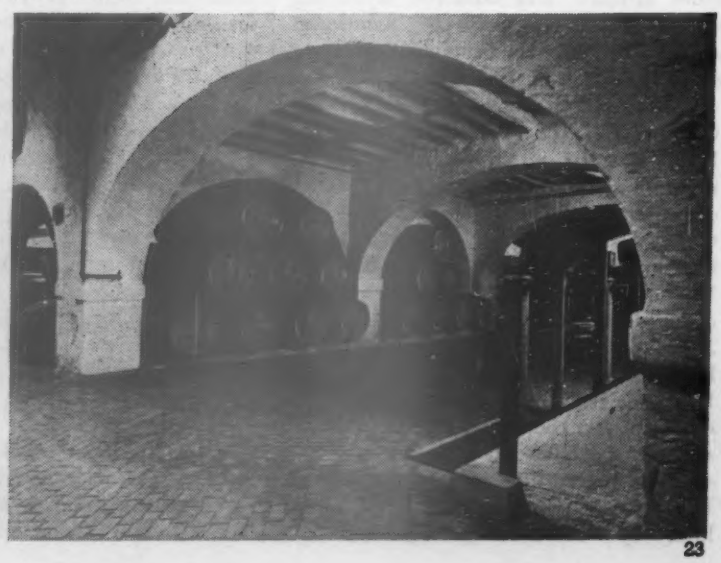
The English church of St. James by Joaquim da Costa Lima: 24, the exterior, much altered, but retaining some of the original character in the portions shown; 25, the interior, also altered—see 24 overleaf.

strips at the angles, is probably what best preserves its original character. The interior, 25, has on the other hand been badly defaced. There exists a painting in the vestry, 26, executed around 1830, which gives us a glimpse of what the interior was like originally. Though no work of art, it is useful as a record. It shows the church to have been a long aisleless room, divided into seven bays, lighted by three round-headed windows on each side. Of these seven divisions, marked by Ionic pilasters, only five now remain, the others having been sacrificed when the

Below, Sandeman's wine lodge (Vila Nova de Gaia): 22, the facade facing the River Douro; 23, part of the interior.



22



23



26, interior of the English church, Oporto, as it was in about 1840, from a painting in the vestry—see preceding page.

building was enlarged. Another feature that has disappeared is the Decalogue which occupied the central space behind the altar. But the most disconcerting alteration has been the lowering of the ceiling. The result has been to flatten out the coving, giving it the rather unpleasant rake it has to-day.

If Sandeman's Lodge and the English church betray the influence of Whitehead's more intimate and domestic style, the remaining buildings to be mentioned derive rather from the monumental manner of John Carr, as enshrined in the Hospital of Santo Antonio. They are the Palacio dos Carrancas, 27, the University, 28, and the Bolsa, 29. In all three instances the interiors are of slight interest, so that we can confine ourselves to an examination of their façades. The first-named is better known to-day as the Soares dos Reis Museum. It was begun in the last decade of the eighteenth century to the designs of Joaquim da Costa Lima Sampaio. It must have been completed fairly rapidly, as the Duke of Wellington made it his headquarters after the French had been driven out of the city. The University was designed in 1803 by José da Costa Silva, but his plans were modified four years later by the military engineer, Cruz Amarante. In 1862 still further alterations were made, and the building was not finally completed until the beginning of the present century. The Bolsa was the last of these buildings to be begun. This was in 1839, so the date 1834 on the pediment cannot refer to its construction. The architect was Joaquim da Costa Lima Sampaio Junior. This structure, too, went through many vicissitudes, and was not completed until 1891. It was here that the Queen was entertained by the city on her visit to Oporto in 1958, as the Town Hall was still unfinished at the time.

The façade of the Palacio dos Carrancas was obviously inspired by the side elevation of the Hospital and displays Carr's typical urns on the skyline. One interesting feature is the way the stringcourse has been converted into a ledge on which rest the wrought-iron balconies of the principal storey. By contrast, the other two buildings show the influence of the main façade of the Hospital, except that the Englishman's hexastyle temple front has been replaced by a tetrastyle one. There is one feature that all three have in common, a mezzanine. It is as if the designers had been seeking a means of combining the general disposition of Whitehead's Factory front with that of the Hospital. The Consul, however, had been careful to make his mezzanine run uninterruptedly across his whole front. The Portuguese designers were unwilling to concede it the same independence; instead they suppressed it at the centre. To compensate for its absence at this point they adopted the expedient of raising the height of the entrance loggia. This in turn meant that the temple front became dwarfed into insignificance. It is only necessary to compare them with Carr's to realize how deficient they are in plastic vigour.

This is particularly noticeable in the Bolsa. Clearly the design is the work of a man determined to maintain to the very last his allegiance to the style in which he had been trained. At the same time it illustrates how the pure essence of Carr's Palladianism became diluted by extraneous influences—note, for instance, the way the openings framing the ground floor windows and the mezzanine have segmental lintels, a feature rarely, if ever, found in Palladian architecture. But it is the pedimented portico that is most disconcerting. By keeping his loggia low, John Carr had been able to give his temple front the height and prominence that make it so impressive. The incorporation of a mezzanine in these later façades destroys all that. Obviously the architect had to adopt a tetrastyle portico to correspond to the three openings below; he could not increase the number of his columns at will. Moreover, being forced by the mezzanine to make his temple front low, he had no remedy but to use small columns and to space them uncomfortably wide apart. Both these defects are considerably heightened by the depth to which the wall at the back has been pushed. In the façade of the University this is less noticeable because the portico is much shallower. Here, however, against the resulting penumbra, the columns look thin and undernourished, as if barely able to carry the weight of the pediment. It is such peculiarities as these that remind us sharply that we are in the nineteenth century with its cult of the Picturesque. At the same time this front is plainly the work of a man whose roots were in the century of the 'rule of taste.' It was the swan song of Palladianism in Oporto.

The author wishes to acknowledge the financial assistance received from the Calouste Gulbenkian Foundation (English section) to enable him to complete the necessary research for this article.



27



28



29

Three monumental buildings in Oporto which derive their style from John Carr's hospital of Santo Antonio (*see pages* 388–390)*:* **27,** *the Palacio dos Carrancas;* **28,** *the University;* **29,** *the Bolsa* (*Stock Exchange*).



1, *south-west corner of the monastery of La Tourette, with the distant landscape seen over the edge of the hill on which it stands. The monastery, which lies about fifteen miles north-west of Lyons, is the subject of this month's critical article, beginning opposite.*

criticism

Colin Rowe

Architect: Le Corbusier

Dominican Monastery of La Tourette, Eveux-sur-Arbresle, Lyons

In 1916, at La Chaux-de-Fonds, Le Corbusier erected a house with a centrally disposed blank panel. Forty years later, in the monastery of La Tourette and at a heroic scale, he has repeated something very like this device. At La Chaux-de-Fonds the blank panel is the central figure of a façade. At La Tourette a largely blank wall comprises the north side of the church. But in both cases, in the villa and in the monastery, as the building is first experienced, the focus of the visual field is provided by an element without high intrinsic interest which, while it absorbs the eye, is unable to retain its attention.

In 1920-21, running through the articles in *L'Esprit Nouveau* which were later to be collected as *Vers Une Architecture*, there appeared the first public evidence of Le Corbusier's intense preoccupation with the Athenian Acropolis:

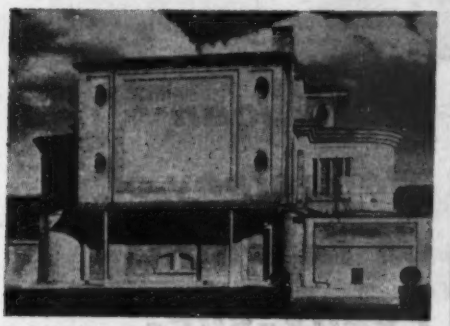
> 'The apparent disorder of the plan could only deceive the profane. The equilibrium is in no way a paltry one. It is determined by the famous landscape which stretches from the Piraeus to Mount Pentelicus. The plan was conceived to be seen from a distance: the axes follow the valley and the false right angles are constructed with the skill of a first rate stage manager. . . . The spectacle is massive, elastic, nervous, crushingly acute, dominating. . . . The Greeks on the Acropolis set up temples which are animated by a single thought, drawing around them the desolate landscape and gathering up into the composition.'

It is not necessary to continue. But at La Tourette, while Piraeus and Pentelicus are alike lacking; while we are presented rather with a species of Escorial than a type of Parthenon; and while the old chateau, partly a farmhouse and partly a piece of Second Empire wish-fulfilment, is certainly not the most likely candidate for the role of Propylea—though differences are so obvious that they need scarcely be stressed—there are still certain patterns of organization—e.g. a compounding of frontal and three-quarter views, an impacting of axial directions, a tension between longitudinal and transverse movements, above all the intersection of an architectonic by a topographical experience—which may to the initiated suggest that the spatial mechanics of the monastery's precinct are just possibly some very private commentary upon Acropolitan material.

But the casual visitor to La Tourette will have little conscious time for this precinct. He has climbed a hill, penetrated an archway and arrived in a gravelled courtyard to find himself in what certainly appears to be no more than the picturesque hiatus between two entirely discrete buildings; to be a merely incidental space. To his left there is a mansarded pavilion. It carries a clock with blue Sèvres figures. To his right is a kitchen garden of uncertain extent. But these, of which he is dimly aware, are the very subsidiary components of the scene. For right ahead, obsessively prominent and unsupported by any shred of conventional artifice, there is the *machine à émouvoir* which he has come to inspect.

Secretly the casual visitor is a little dismayed. He is no longer to be shocked by the absence of a preface to a work of architecture. He feels that by now he can take any lack of introduction quite in his stride. He is hardened to a very good deal. But he still scarcely expects to be so entirely cold-shouldered as here seems to be the case. A vertical surface gashed by horizontal slots and relieved by a bastion supporting gesticulating entrails; an enigmatic plane which bears, like the injuries of time, the multiple scars which its maker has chosen to inflict upon it; by any standards an inference of his own complete irrelevance—the visitor had anticipated something either a little less or a little more than this. And thus, while the three en-

trails, the so-called *canons-à-lumière*, might seem to quiver like the relics of a highly excruciating martyrdom, while the general blankness of the spectacle might seem to be representative of religious anonymity and while a variety of phantasies infiltrate his consciousness, the



2, the villa built by Le Corbusier at La Chaux-de-Fonds in 1916. Colin Rowe argues a similarity between this and the approach side of La Tourette (below), in that both have as visual focus an element without high intrinsic interest which absorbs the eye but does not retain attention.

visitor, since he feels himself to be presented with a random disclosure of the building, is at this stage disinclined to attribute any very great importance to his experience.

The north side of the church this wall is instinctively known to be. It is doubtful if any other element could be so opaque. So much is evident. But, therefore, while the visitor interprets it frontally, he also attributes to this inscrutable visual barrier the typical behaviour patterns of an end elevation. This wall may indeed be a great dam holding back a reservoir of spiritual energy. Such *may* be its symbolical reality. But the visitor also knows it to be the part of a building; and he believes himself to be approaching, not this building's front, but its flank. The information which he is being offered, he therefore feels, must be less crucial than simply interesting. The architect is displaying a profile rather than a full face. And, accordingly, since he assumes that the expressive countenance of the building must be around the corner, rather as though the church were the subject of a portrait *en profil perdu*, the visitor now sets out to cross an imaginary picture plane in order to grasp the object in its true frontality.

A certain animation of contour—the oblique cut of the parapet and its intersection with the diagonal of the belfry—will focus his eye and lead him on. But if, for these reasons, the building first insists on a rapid approach, as he climbs the hill or moves along the alley within the trees, the visitor is likely to discover that, somehow, this gesture of invitation has vanished and that the closer he approaches it the more unsympathetic the building seems to become towards his possible arrival.

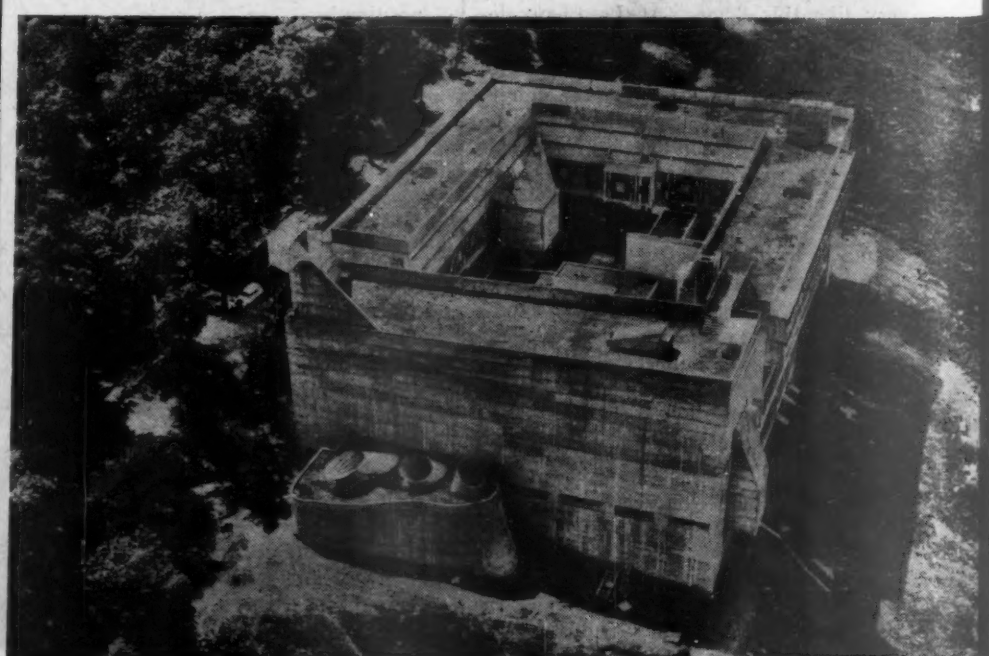
This is one aspect of a disconcerting situation; but another should be noticed: that at a certain stage in the approach route the building suddenly comes to seem utterly drained of importance. For, as one leaves behind the courtyard of the old chateau, which is the socket of the enclosure in which one had believed oneself to be, one is obliged to exchange a reliable womb for an unpeopled arena. The whole deserted sweep of the upper valley of the Turbide has progressively come into view; the field of experience is transformed, and the nature of the stimuli to which one is subjected becomes systematically more concentrated and ruthless.

Thus, the eye which was previously directed towards the left of the church façade, towards the point of entrance, is now violently dragged away towards the right. The movement of the site has changed. The visual magnet is no longer a wall. Now it has become an horizon. And the wall which previously had acted as the backdrop to one field of vision, as a perspective transversal, now operates as a side screen to another, as a major orthogonal, which directs attention into the emptiness of the far distance but which, by foiling the foreground incident—the three entrails—also serves to instigate an insupportable tension between the local and the remote. In other words, as the church is approached, the site which had initially seemed so innocent in its behaviour becomes a space rifted and ploughed up into almost unbridgeable chasms.

This is conceivably to provide too lurid an analysis; but, though it may exaggerate the intensity, it does not too seriously distort the quality of an experience which is unexpected as it is painful. It would be possible, and maybe even justified, to interpret this preliminary *promenade architecturale* as the deliberate implication of a presumable tragic insufficiency in the visitor's status. The wall is exclusive. The visitor may enter, but not on his own terms. The wall is the summation of an institutional programme. But the visitor is so placed that he is without the means of making coherent his own experience. He is made the subject of diametric excitations; his consciousness is divided; and, being both deprived of and also offered an architectural support, in order to resolve his predicament he is anxious, indeed obliged—and without choice—to enter the building.

It is possible, but it is not probable, that all this is uncontrived. However, if one happens to be sceptical of the degree of contrivance and if one is temperamentally predisposed to consider the game of hunt-the-symbol as an over-indulgence in literature, then it will be desirable to continue an inspection of the building's exterior. It is not an easy decision to make. For the vertical surface of the church wall slices both the higher and lower approach roads like a knife and, when this psychological obstacle is penetrated, though something of the interior of the convent is at last presented, a further discovery is made. The visitor now finds that the anticipated frontal views never do, in fact, materialize. He becomes aware that the only surface of the building which actively encourages a frontal inspection is indeed exactly that north wall of the church which it had been

[*continued on page 407*



*3, air-view showing the blank north wall of the monastery (that of the church), which is all that is seen as the visitor first approaches it. At the foot of the wall is a side chapel lit by three canons-à-lumière. It is of some interest that Le Corbusier, who does not normally publish air-photographs of his buildings, has included this in his recent autobiographical anthology—*My Work.



4



5

4, air-view of the monastery of La Tourette from the south-west, showing in the distance the chateau from which the monastery is approached. 5, the southern side, again looking towards the chateau (which is partly hidden by the building). 6, the western side, seen from a short way down the slope of the hill. At the top of the building are the cells; below are lecture-rooms and the refectory; on the left is the end of the church.

6





7

7, from the west, looking through the gap between the end of the church (on left) and the living-quarters, refectory, etc. 8, *side view of the church, facing the approach from the north, with projecting side-chapel on the roof of which are three* canons-à-lumière, *and (top left) the belfry.* 9, *detail of the western side (steps leading to the refectory) with the end of the church beyond.*



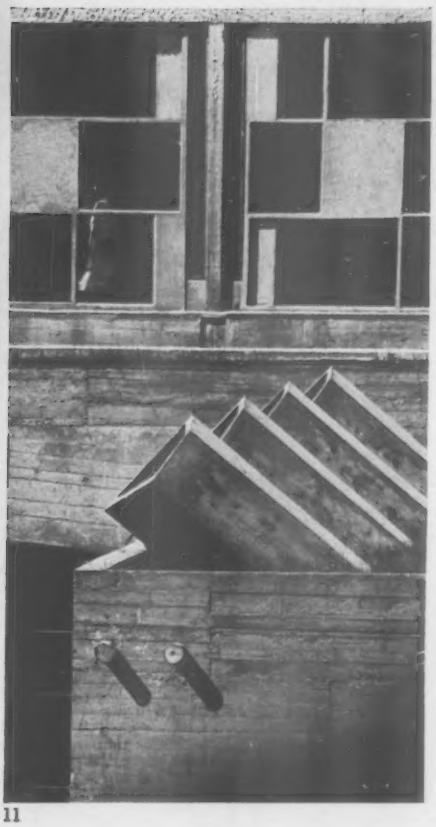
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10, *looking into the courtyard of the monastery from the eastern side, with the church on the right and, on the far side, the corridor windows of the two tiers of cells.* 11, *close-up from the same direction. In the foreground are* canons-à-lumière *on the roof of the southern side-chapel of the church, on to which they throw indirect light. Beyond are the windows of the corridor serving the lecture-rooms* (see plans on page 409). 12, *close-up of part of the two-tier range of cells along the western side* (see 1, page 400), *with their open balconies and showing the contrasting concrete textures.*

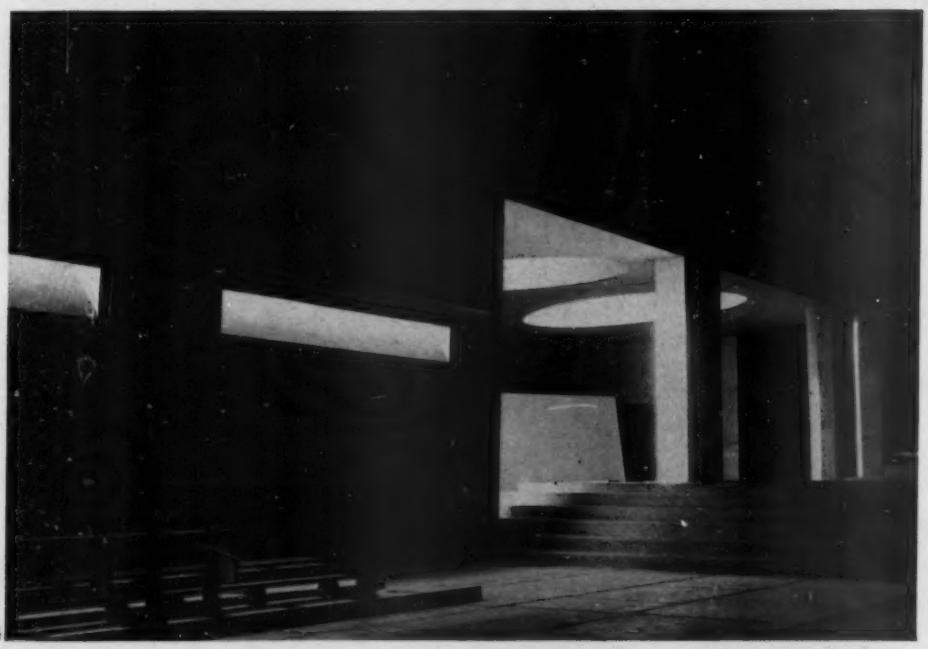


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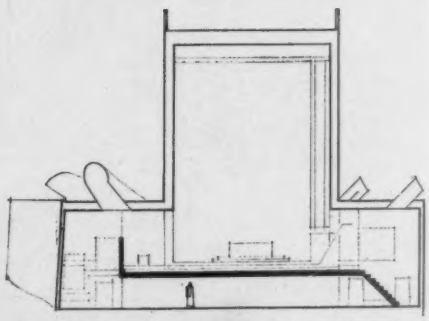
Dominican monastery,

Eveux-sur-Arbresle

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13, *inside the church, looking westwards into the nave from the upper level on which the high altar stands.* 14, *from the nave level, showing the steps up to the high altar and, on the left, the top-lit northern side-chapel. The transverse section through the church above shows the relative height of the main interior and the two side-chapels.* 15 *(below), the interior of the refectory. '. . . four columns in the middle (four* cylinders) *shoot up towards the shade of the roof, giving a feeling of force and a witness of potent methods' wrote Le Corbusier in* Vers une Architecture *in* 1923. (*English translation,* Towards a New Architecture, 1927), *when describing the Casa del Noce at Pompeii.*

Dominican monastery, Eveux-sur-Arbresle

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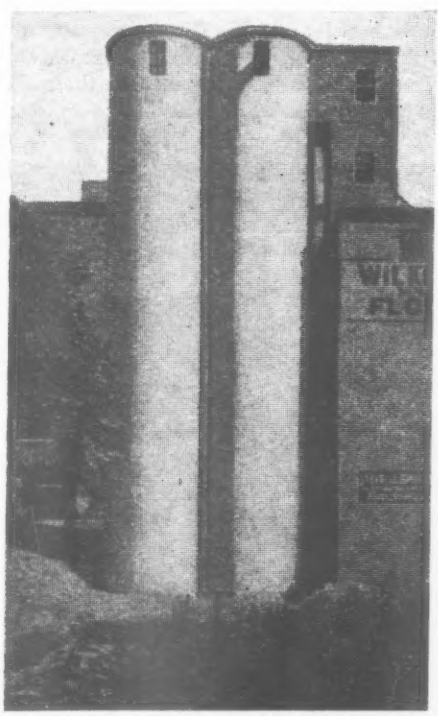
supposed was never to be interpreted in this way.

Thus, while other exposures, east and west, at the price of uncomfortable clambering around, may certainly be seen in frontal alignment, they are usually presented, and apparently intended to be seen, only in a rapid foreshortening. Thus, the south elevation, although generally visible in far less abrupt perspective, is still something evidently to be seen from oblique points of view; and thus, though on three sides the monastery of La Tourette is entirely open to the landscape, the conditions of its visibility lead, not to the seeing of the real and tangible voids, but to a consciousness of solids, to an awareness of ranges of verticals implicated in quick succession; of the returns of balconies rather than the presence of the windows at their rear. While, in addition, since externally the building has an extremely high visual centre of gravity, it must also be noticed that the same solidity, the same optical closure which issues from the lateral foreshortenings, is further affirmed by the vertical movements of the eye. Here again, as the eye moves up and down, there is a distinct tendency for it to register the density of under-surfaces and to infer the closest interrelation of horizontal memberings.

Once more, this elaborate divorce of physical reality and optical impression may possibly be uncontrived; but, in the degree to which it sustains images of concentration and inwardness, and in the manner by which it makes prominent the behaviour of the approach façade, it is a phenomenon which now at least may *begin* to suggest that we are in the presence of the most self-conscious resolution. On the Acropolis, the Greeks, we are told, '*employed the most delicate distortions, applying to their contours an impeccable adjustment to the laws of optics*'; and, though we are by no means on the Acropolis, if at this stage the patience can be summoned to re-examine the north wall of the church, there may now be detected admonitory signs which seem to rehearse the types of experience to which one is later subjected.

First, just as La Chaux-de-Fonds, where the blank panel generates a fluctuation of meaning and value and is incessantly transposed from a positive to a negative role in the façade, so at La Tourette: the wall of the church, which is constantly invested with high figurative content and then deprived of it, acts both to call attention to itself and simultaneously to shift attention outwards on to the visual field of which it is the principal component. But while at La Chaux-de-Fonds the fundamental structure of the ambiguity is simple, while this structure is confined to a plane and causes largely an oscillation in the evaluation of surface, at La Tourette we are presented with a far more evasive condition. It is a condition which involves above all readings of depth; and, while from it there issue a series of disturbances scarcely amenable to any accurate generalization, there are still two approximate tendencies which might be noticed: that the building tends to revolve, to pivot around an imaginary central spike, and at the same time that the building also tends to a supremely static behaviour.

As has been inferred, Le Corbusier presents the north side of his church to the visitor in very much the same way that in *Towards a New Architecture* he chose to illustrate the Parthenon. He provides, that is, a type of foreshortened frontal perspective which gives importance to the receding orthogonals, but which firmly insists on the priority of the transversals. He offers, in other words, a modified three-quarter view rather than a definitely oblique condition; and the visitor is thus made aware of the monastery's western exposure as a significant, but as a nevertheless subordinate, component of the principal figure.



16, *grain elevator: one of the original illustrations from* Vers une Architecture (*Le Corbusier*, 1923). *Compare with the view of La Tourette: no.7, page 404.*

But not to labour this point: at the same time that he does this, it is remarkable that Le Corbusier has also built into this frontal plane of his wall the implication of a depth which by no means exists in reality. The oblique cut of his parapet should now be noticed. It is a line so slightly out of the horizontal that the eye has an instinctive tendency to 'correct' and translate it for what average experience suggests that it should be. For, being eager to see it as the normal termination of a vertical plane, the eye is consequently willing to read it, not as the diagonal which physically it happens to be, but as the element in a perspective recession which psychologically it seems. Le Corbusier has established a 'false right angle'; and this *fausse équerre*, which in itself infers depth, may also be seen as sporadically collaborating with the slope of the ground further to sponsor an intermittent illusion that the building is revolving.

Something of the vital animation of surface, the small but sudden tremor of mobility, in the area between bastion and belfry certainly derives from the torsion to which the wall is thus subjected; but, if this phenomenal warping of surface may be distinctly assisted by the real flexions of the bastion wall itself, then at this point it should also be observed how the three *canons-à-lumière* now introduce a counter-active stress.

For the spectacle of the building as seen on arrival is finally predicated on a basis, not of one spiral, but of two. On the one hand there are the pseudo-orthogonals which, by the complement they provide for the genuine recession of the monastery's west façade, do stimulate an illusion of rotation and spinning. But, on the other, are those three, twisting, writhing, and even agonised, light sources—they illuminate the Chapel of the Holy Sacrament—which cause a quite independent and equally powerful moment of convolution. A pictorial opportunism lies behind the one tendency. A sculptural opportunism lies behind the other. There is a spiral in two dimensions. There is a contradictory spiral in three. A corkscrew is in competition with a restlessly deflective plane. Their equivocal interplay makes the building. And, since the coiled, columnar vortex, implied by the space rising above the chapel, is a volume which, like all vortices, has the cyclonic power to suck less energetic material in towards its axis of excitement, so the three *canons-à-lumière* conspire with the elements guaranteeing hallucination to act as a kind of tether securing a tensile equilibrium.

Enough has now been said to suggest the intricacy of La Tourette as a perceptual structure, but it would be equally possible to approach its problems with entirely opposite and wholly conceptual criteria in mind; and, though the normal way of seeing a building is, as we have approached here, from the outside in, since the normal way of making one is properly supposed to be from the inside out, it may now be convenient to withdraw attention from the more sensational aspects of the monastery and to consider instead what may be presumed to be its rationale.

The programme for the building was explicit. There was to be a church to which the public could on occasion be admitted. There were to be a hundred cells for professors and students, an oratory, a dining-room, a library, classrooms, and spaces for conference and recreation. Finances were meagre. There was a certain problem of institutional decorum. But though the architect was therefore subjected to certain very definite limitations, and though he was involved with a religious order whose regime was established rather more than seven centuries ago, it cannot truthfully be claimed that the operational requirements with which he was confronted were so very rigid and inflexible as to predicate any inevitable solution.

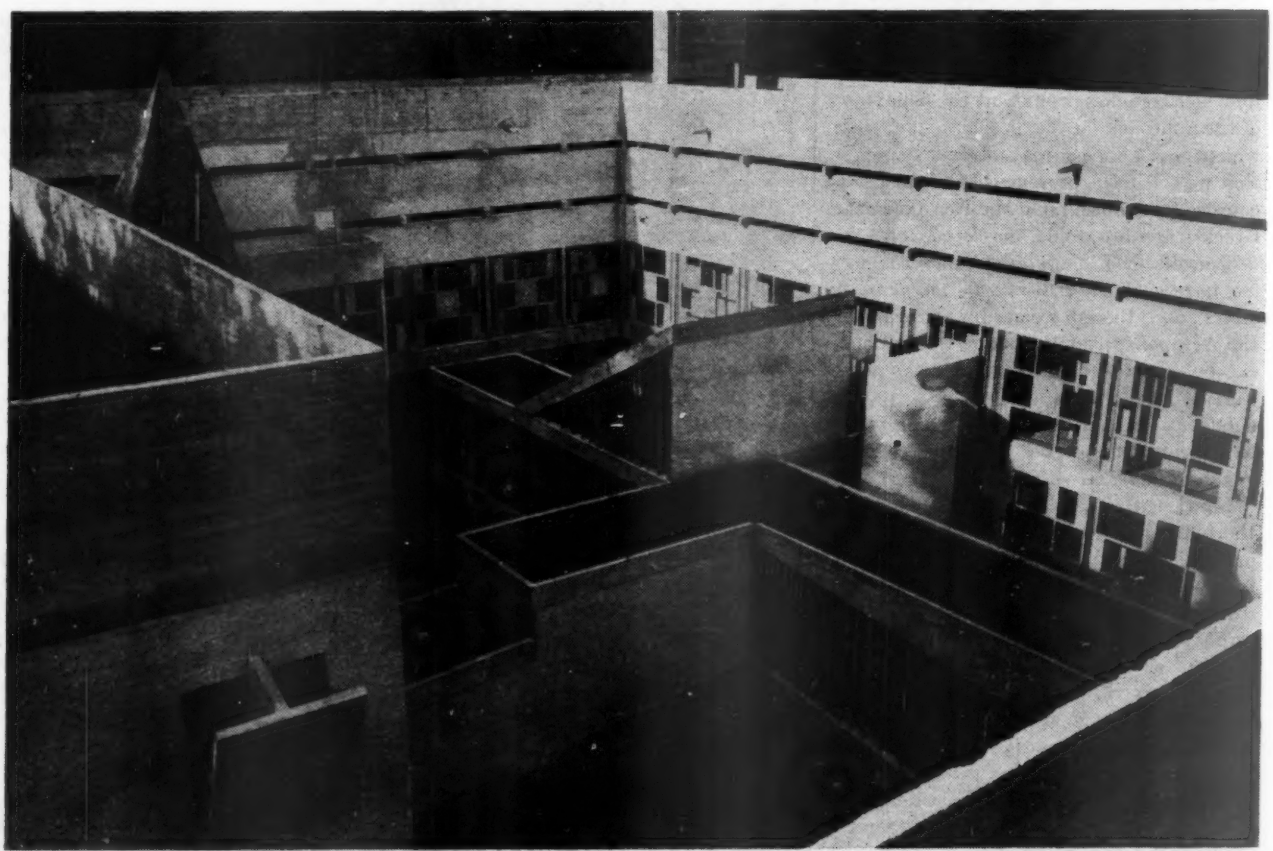
It is possible to imagine the Wrightian version of this programme: a major hexagonoid volume, proliferating by an inward impulse a variety of minor hexagonoids, terraces and covered ways. A Miesian solution can be conceived. Embryos of the Aalto-esque, the Kahnian and a whole forest of other variants swarm in the imagination. But the number of choices available to any one man, like those available to any one epoch, are never so great as those which, in fact, exist. Like the epoch, the man has his *style*—the sum total of the emotional dispositions, the mental bias and the characteristic acts which, taken together, comprise his existence; and in its essential distributions (though with one great exception), Le Corbusier's building is co-ordinated very much along the lines that previous evidence of his style might lead one to predict.

The solution which he has presented—a quadrilateral pierced by a courtyard; with the church on its north side; with the cells deployed to east, south and west in two tiers immediately below the roof; with the library, classrooms, oratory and principal entrance on the floor below this; with the refectory, chapter house and major circulations at the still lower level adjacent to the floor of the church; and with, below this again, the kitchens—is entirely evident from the published plans of the building; and, like all Le Corbusier's solutions, it is both a highly generalized as well as a highly particularized statement.

It could be said that La Tourette, like any other building by any other architect, is primarily determined by a formal preference which is felt to be a logical one. Obviously it reflects Le Corbusier's insistence on volumetric economy; and it would be reasonable, therefore, to suggest that the final premises of the arguments on which it is based are not really susceptible to empirical proof. Secondarily, the monastery would seem to be determined on the basis of category, i.e. by its relation to a series of propositions which postulate the ideal form of a Dominican establishment, conceived in the abstract, and presumed to be valid irrespective of circumstances of place or time. And, finally, these more or less aprioristic deductions are brought into antithetical connection with specific conditions of locality.

The site was allegedly of Le Corbusier's own choosing. It could be supposed that other architects might have chosen otherwise. But, if a superb prospect verified the selection, it does also seem probable that this particular terrain was chosen for its inherent difficulties. For at La Tourette the site is everything and nothing. It is equipped with an abrupt slope and a lavishly accidental cross fall. It is by no means the local condition which would readily justify that quintessential Dominican establishment which seems to have been preconceived. Rather it is the reverse: architecture and landscape, lucid and separate experiences, are like the rival protagonists of a debate who progressively contradict and clarify each other's meaning.

Above all, the nature of their inter-action is dialectical; and thus the building, with its church to the north, liturgically correct in orientation, separated from but adjoining the living quarters which face the sun, is presented as though it were a thesis for



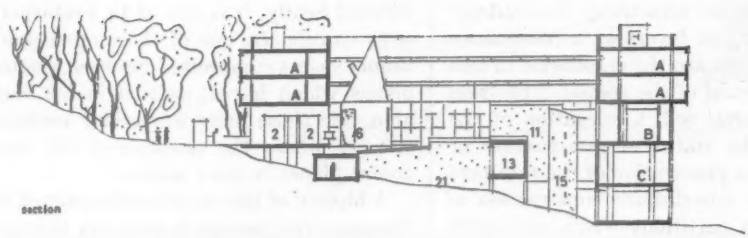
17, *inside the courtyard of the monastery, looking down from the roof of the church, near the belfry. The courtyard is crossed by covered corridors. The pointed roo in the left-hand angle is that of the novices' chapel.*

discussion; and thus the site inevitably rises to function as counter-proposition. There is a statement of presumed universals and a contrary statement of particulars. There is the realist proclamation and the nominalist response, the idealist gesture, the empiricist veto. But, if this is a procedure with which Le Corbusier has long since made us familiar, and if such is his particular mode of logic, there is, of course, here in the programme a curiously pragmatic justification for its exercise. For it was, after all, a Dominican monastery which was here required. An architectural dialectician, the greatest, was to service the requirements of the arch-sophisticates of dialectic; and there was, therefore, a quite special dimension of appropriateness which inhered to the approach.

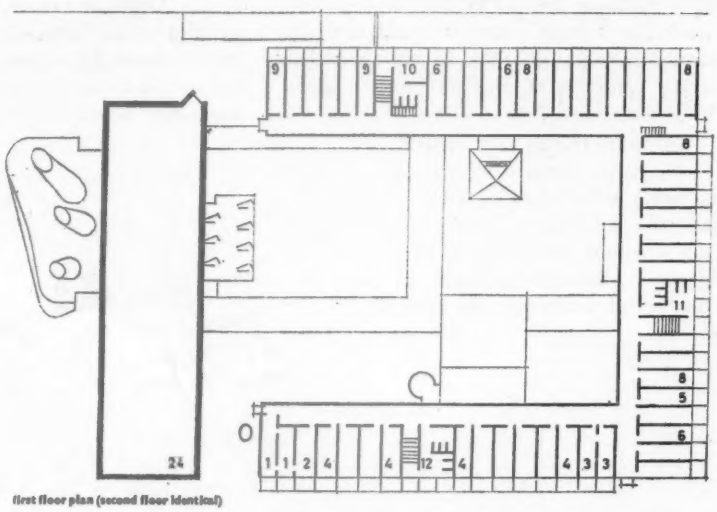
But, if the building thus answers to the ethos of the institution, this was surely the mere accident of parallel attitudes, of equivalent rigour. The architect scarcely set out deliberately to provide a plastic analogue of scholastic debate. It was only that his state of mind and that of his clients were co-incident in their astringent quality, and that both parties were ironically aware of their common identity and difference. Above all, it was not a case of the architect mimicking scholastic reasoning so much as it was the presence on both sides of irreproachable intellectual integrity which has disinfected the logical conclusions of the argument of all those conciliatory flavourings which are apt to be the outcome of attempts to bring religious institutions and modern architecture into accord. At La Tourette there are no turgid atmospherics. There is nothing ingratiating or cheap; and, as a result, the building becomes positive in its negation of compromise. It is not so much a church with living quarters attached, as it is a domestic theatre for virtuosi of asceticism, with, adjoining it, a gymnasium for the exercise of spiritual athletes. The figure of the boxer and his punch ball on the terrace or the 1928 project for Geneva has become conflated with the image of Jacob wrestling with the Angel.

However, this is to discuss effects before causes. The play on spiritual exercise as physical gymnastic may be one of the more invigorating themes at La Tourette; but it is a result rather than a determinant, and the immediate causation of the building, apart from the dialectic of architecture and site, ought now at least briefly to be noticed. While, since Le Corbusier has always been frugal with ideas and never mistaken mere experiment or intellectual profligacy for thoughtfulness, the more obvious causation is not far to seek.

There is the famous structural *schema* for the *Maisons Domino*, with its concep-

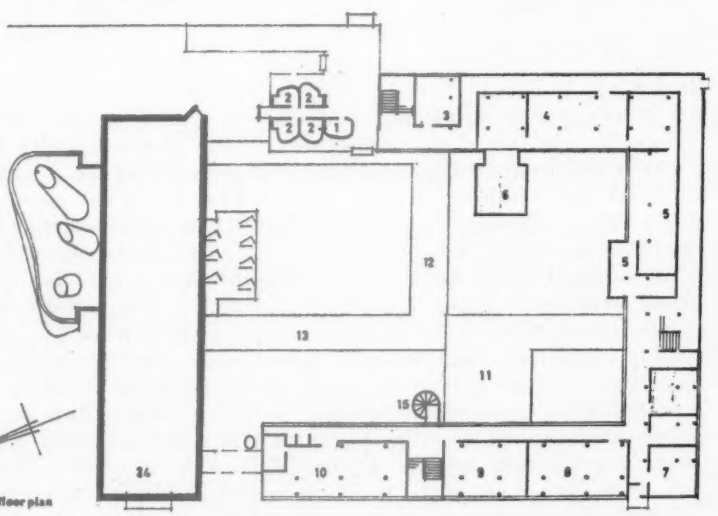


section

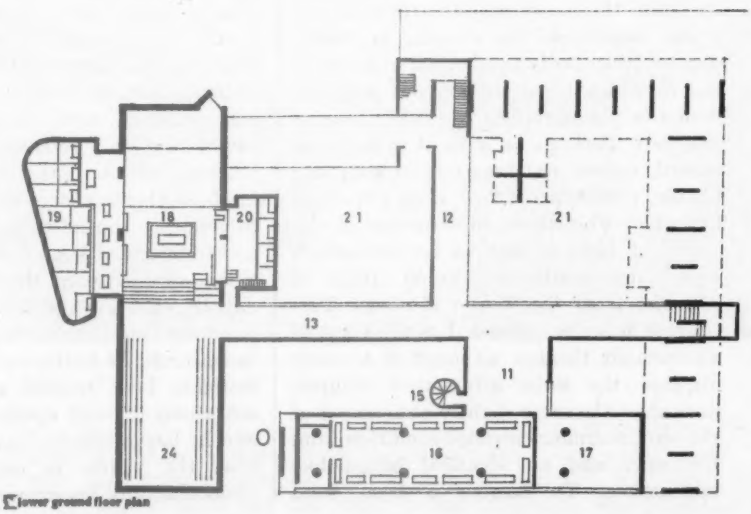


first floor plan (second floor identical)

key
section
A, cells.
B, lecture rooms.
C, refectory.
2, interview rooms.
6, chapel.
11, atrium.
13, corridor.
15, stairs.
21, courtyard.
first and second floors
1-9, cells.
10-12, w.c.s.
24, church.
ground and lower ground floors
1, porter.
2, interview rooms.
3, lay brothers' common room.
4, novices' library and common-room.
5, library and reading room.
6, novices' chapel.
7-10, lecture rooms.
11, atrium.
12, 13, corridors.
15, stairs to atrium.
16, refectory.
17, treasury.
18, high altar.
19, side chapel north.
20, side chapel south.
21, courtyard.



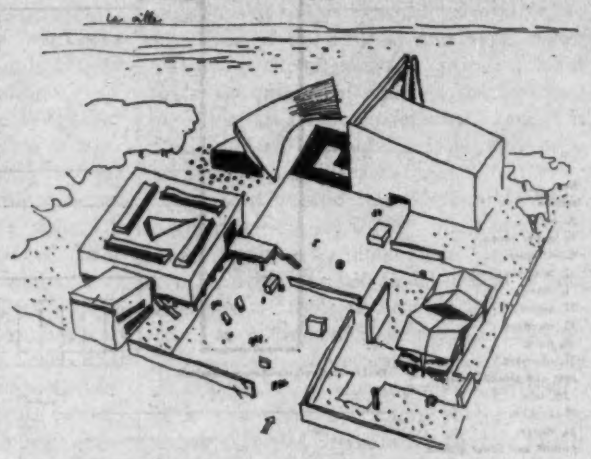
ground floor plan



lower ground floor plan

tion of space as something horizontally stratified like the layers of a Neapolitan wafer; and there are the corollaries to this drawing: a denial of the spatial expression of the structural cell, a relegation of the column to the status of punctuation or caesura, and a penetration of the resultant product by a labyrinthine construction of miscellaneous partitions which propagate a centrifugal stress. This is almost all. Basically, it is all by now very old; and as a result there is very little to say about the living quarters of the monastery taken by themselves.

There are the usual elements of wit: an entrance which is possibly a little too Japanese, and the five parlours adjoining it; a spiral staircase which parodies something from a mediaeval building; and the astonishing Ledolcian fantasy of the oratory as seen from outside. But these are the *quodlibets* of the scholastic discourse; and more important are the distinctions of emotional tone which the different levels of the living quarters support. This is effected by an orchestration of light. There is a movement from the brilliance and lateral extension of the refectory and chapter house, through the more sombre tonality of the library and oratory, up to the relative darkness and lateral closure of the cells. Thus there are progressive degrees of concentration and intimacy; but if, in their turn, the cells are like a hundred private recapitulations of the church, it is now necessary to close the circuit and to approach this most problematic element.



18, *sketch showing Le Corbusier's* La Boîte à Miracles *of 1954-56, as part of his project for a museum at Tokyo. Colin Rowe compares it, as form, with the church at La Tourette.*

The quality of the church, in which chiaroscural effects reach their maximum and in which negation becomes positive, cannot be photographed, nor will it here be analyzed. Perhaps as a form it is to be related, not as first may appear to a late Gothic prototype—some King's College Chapel or Franciscan construction in the valley of Mexico—but to Le Corbusier's own (and contemporaneous) *Boîte à Miracles* from the Tokyo Museum. This 'Box of Miracles,' intended as the stage of an open-air theatre, although it scarcely displays the same attenuated volume, does show the same slightly oblique cut of the roof, a similar entrance condition from the side, and an identical hangar-like appearance. To borrow a term from Vincent Scully, it is one of Le Corbusier's *megaron volumes*, one of those open-ended tunnel spaces compressed between vertical planes which have persisted in his work alongside those more advertised *sandwich volumes* where the pressure of the horizontal planes is more acute.

A history of the cross fertilization of the megaron and sandwich concepts throughout Le Corbusier's career would be entirely relevant to the discussion of La Tourette; but it is scarcely an account which can fall within the scope of a short critique and it might now simply be noticed that, while at Tokyo a megaron and a Poissy-type sandwich occur together within the same project, at La Tourette they are so compounded within a single block that Le Corbusier is able simultaneously to secure the manipulation of all spatial coefficients.

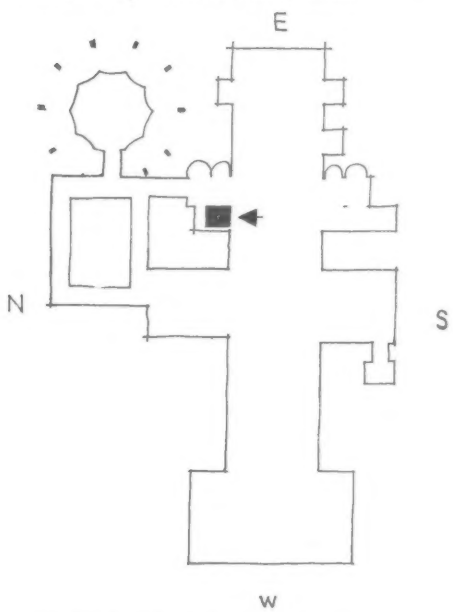
To a block one attributes a structural continuity, a textural consistency of space and a homogeneity of spatial grain or layering. While recognizing it to be a hollow and to be empty, one still conceives its emptiness as, in some way, the metaphor for a block of stone or a block of wood. It is exploitable only on the condition of collaborating with the nature which it has been assumed to possess. Or so it might have been thought. But at La Tourette, these precepts which one may often believe Le Corbusier himself to have taught and which one has sometimes felt to be a norm of procedure, are conspicuously breached, and breached with a sophistication so covert that only retrospectively does one become conscious of this means by which he has been able to charge depth with surface, to condense spatial concavities into plane and to drag to its most eloquent pitch the dichotomy between the rotund and the flat. By violating a unity at conception, by jamming two discrete elements within the same block, Le Corbusier has been able to instigate both tension and compression, sensations of both openness and density, and he has guaranteed a stimulus so acute that the visitor is not aware of the abnormality of his experience.

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a monthly review of interior design

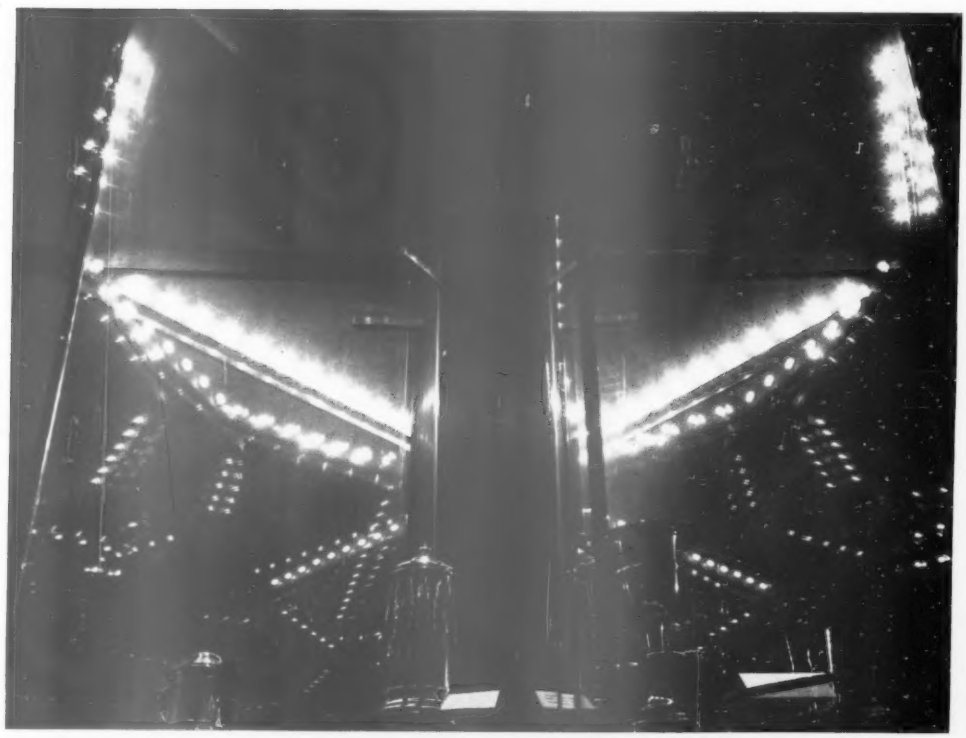
Treasury in Lincoln Cathedral

architect : Louis Osman

This is the first open treasury to be installed in an English cathedral. It is designed for the display to the public of church plate from all over the diocese and to arouse interest in what the diocese possesses. Lincoln is rich in plate, but much of it is seldom used in the parishes to whom it belongs and is often hidden away and even forgotten. Some parishes are tempted to sell it when they need to raise funds.



sketch plan of Lincoln cathedral, showing position of treasury



1



2

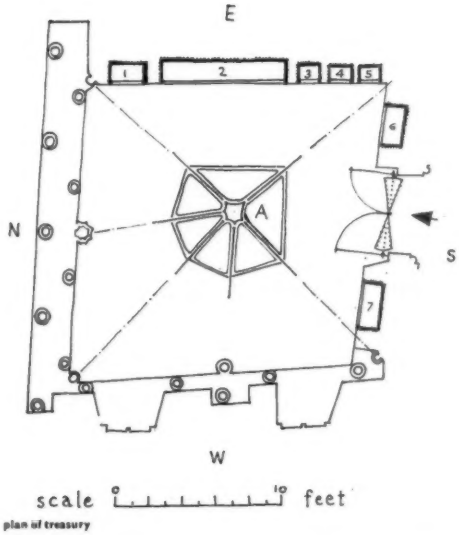
In the centre is a bronze and plate-glass showcase, supported on a shaft of purbeck marble: 1, *close-up at the top;* 2, *close-up at the bottom, with the bronze spokes cantilevered clear of the floor, on which shadows are cast by the exhibits on the shelves.*

The treasury owes its existence in the first place to a proposal made by Mr. C. C. Oman, of the Victoria and Albert Museum, and to the encouragement and financial support of the Goldsmiths' Company, who hope that the precedent created at Lincoln may be followed in other cathedrals.

The site is at the corner of the north choir aisle and the eastern transept crossing, where a disused chapel was being used as a vergers' and cleaners' mess-room. The chapel had been made, possibly in the fourteenth century, by altering the more open thirteenth-century plan and adding interior rubble walls. The two original walls had double ranges of arcading on purbeck shafts. Each of the two more recent walls (those of plain rubble infilling) contained a doorway ; that to the transept was still in use and had its original oak and wrought iron door ; the other, to the choir-aisle, was blocked. Opposite the blocked door was a magnificent thin octagonal shaft of purbeck marble,

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Treasury in Lincoln Cathedral



plan of treasury

3, the showcase which occupies the centre of the treasury. It is marked A in the plan on the right, on which the dotted lines indicate the vaulting above and the numbers refer to the small showcases recessed into the walls. One of these can be seen on the left side of the photograph. 4 (facing page), looking up to the roof, with the showcase on the left, showing the original arcading and windows, the latter now furnished with stained glass.



free-standing apart from a coupling at the string course half-way up and carrying so much weight from the vault above that a note was set up when it was struck. The vaulting was irregular, the rebuilding of the choir having been begun and finished at this point, and the two not quite meeting. The plan of the vaulting (see sketch-plan alongside) has been followed in the setting out of the asymmetrical showcase in the treasury. Its shaft is immediately below the off-centre boss of the vault and well out of centre of the chapel. There were, in the original chapel, two lancet windows 25ft. high and 5ft. wide and two small 5ft. by 4ft. windows (probably sixteenth-century) cut into the arcading at eye level.

The first problem was to repair the chapel, replacing mutilations which destroyed the original line, removing intrusive features and careless repairs and a number of water and other pipes and cables. The original doorway to the choir was reopened to give an axial view of the shaft mentioned above, the plastering was restored and white-washed and the purbeck shafts hand-polished to preserve their eroded surface. The original floor had been replaced and was worn and rough. It was taken up and a reinforced concrete mushroom foundation, 12ft. in diameter, was cast to support the central showcase shaft ; above this a water-proof concrete sub-floor with embedded heating cables was laid and the stone slab floor replaced. The only thing then visible above floor level was the top twelve inches of a 6in. steel tube which had been cast into the new foundations to take the electric cables for the central showcase. To this tube were attached the reinforcing rods of the central shaft of the showcase.

This shaft was formed of a 10ft. high hexagonal green purbeck marble tube, 1½in. thick, which served as permanent shuttering and was filled with concrete. A wheel of radiating bronze spokes was cast in, 18in. above the floor, and a top ring 10ft. above the floor, with ½in. toughened plate-glass fins dividing the case into six compartments and carrying irregularly shaped ½in. glass shelves. The ends of the bronze spokes are joined by top and bottom perimeter bronze rails with six toughened plate-glass doors hanging from them. The largest of these doors is 9ft. by 4ft., and the total weight of glass supported clear of the floor on the single column is well over a ton. The floor-heating cables are made to run through the central column so that the whole case is slightly warmed against condensation and tarnishing of the silver. The case is open at top and bottom to allow free circulation of air.

Into the two infilling walls of the chapel are cut seven niches of varying size and depth to display additional pieces of plate. They, too, are heated with electric cables and closed by flush frameless glass doors with specially designed locks. They are lined with coarse shuntung silk of seven different, but related, earth colours. The plaster and free-stone work in the chapel has been lime-washed white, including the vaults, and the ribs of the vaulting lightly touched with gold leaf, which is pushed with a finger into the sinkings in the carving. This gives a little

glint and sparkle to the otherwise matt surfaces where the metal catches the light from a spot-light shining through the central carved boss in a narrow beam directly on to the showcase below. The lighting of the cases is by two hundred tiny Krypton-filled

4



Treasury in Lincoln Cathedral

5, looking into the treasury from the cathedral aisle, with the grille-door partly open. 6, the interior with the central showcase on the left, the grille-door from the inside and, on right, one of the small wall-cases—see plan on page 412. 7, close-up of part of the grille-door, designed by the architect in wrought iron and stainless steel—see also the cover of this issue.



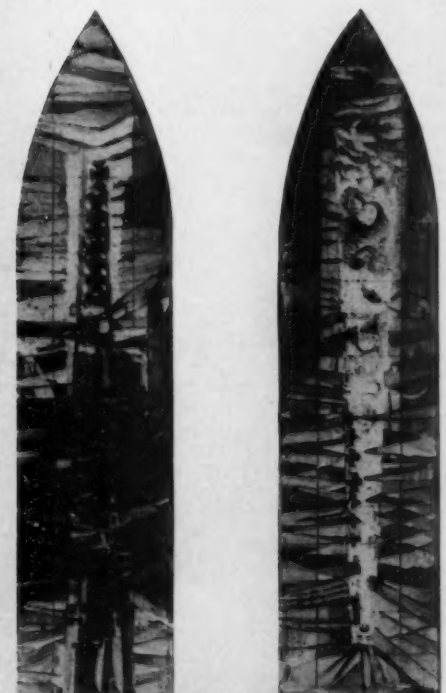
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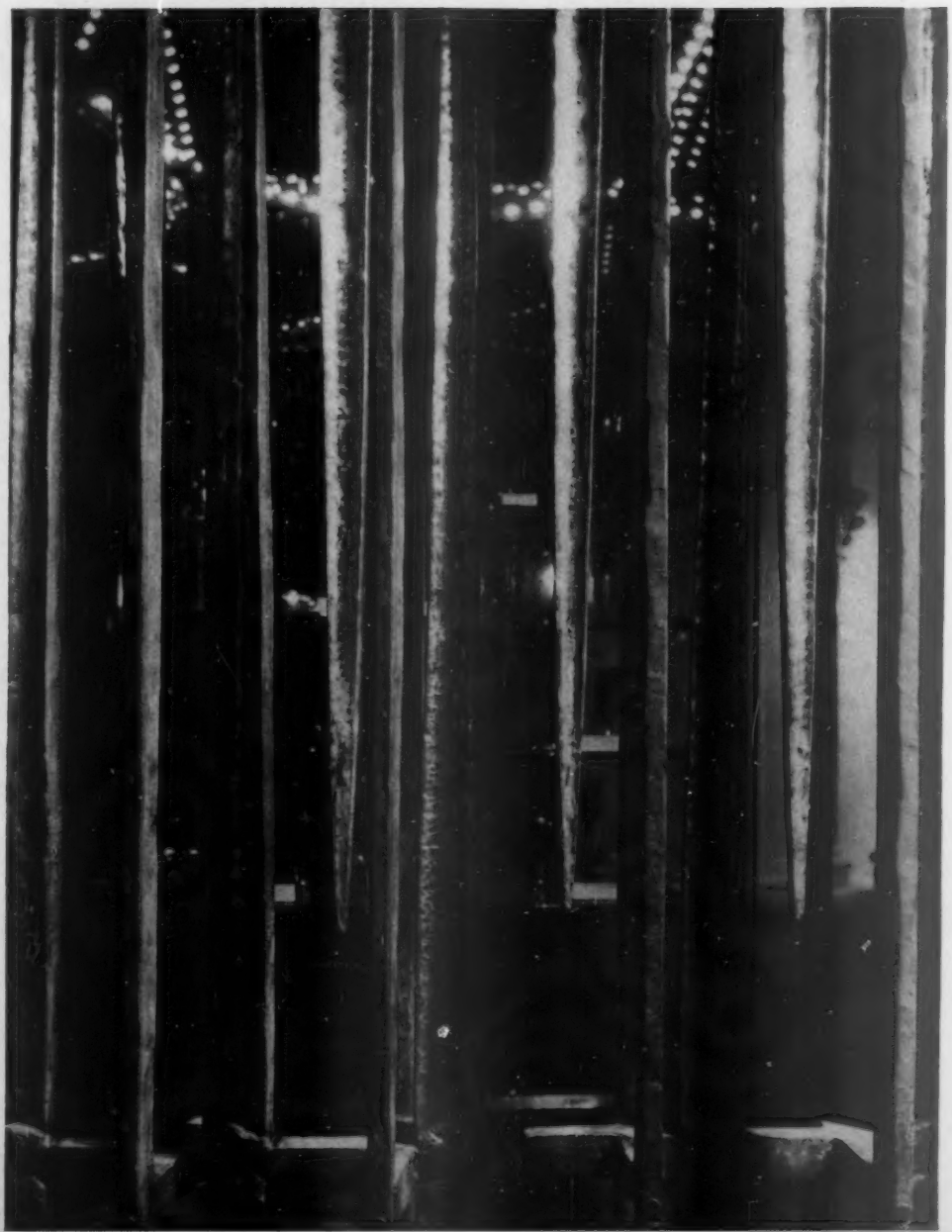
6

miners' lamp bulbs, with the supply transformed to eight volts. These little lamps have a very pure white light and create spot reflections in the silver. They can be looked at by the naked eye without blinding.

The original pointed arched doorway has been closed by a grille of wrought-iron hairpin-shaped splines, narrow in elevation and wide in depth, which form a double thickness, holding between them a screen of cast stainless steel spikes. These are in twelve sets, pointing alternately upward and downward, and are rough in texture. Their shapes are echoed in the four stained glass windows of green-brown-grey glass which have been designed by Geoffrey Clarke.



Geoffrey Clarke's sketches for the stained glass in the two lancet windows—see preceding page.

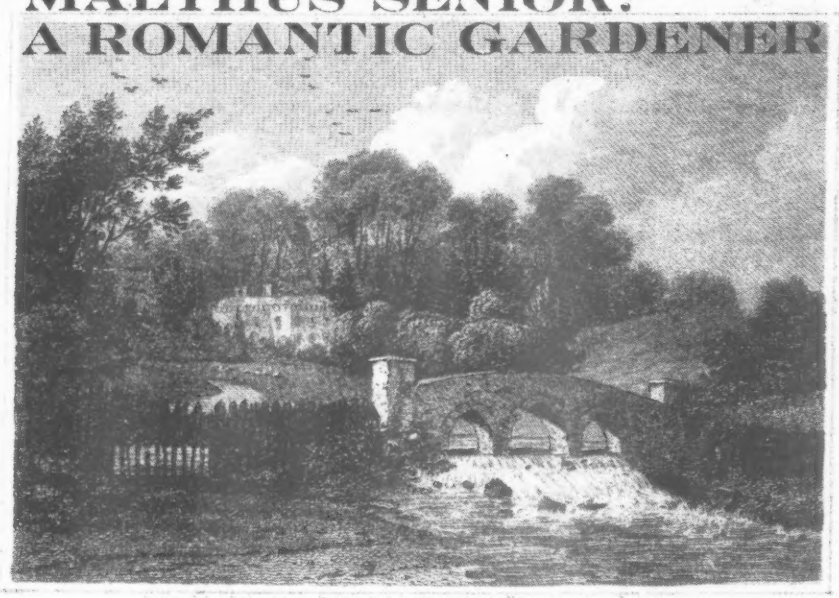


7



L. F. GREGORY

MALTHUS SENIOR: A ROMANTIC GARDENER



THE ROOKERY, near DORKING.
The Seat of Robert Knight Esq^r

The name of Daniel Malthus is almost obliterated by time from his gravestone in Wotton churchyard, Surrey—a fact which is symbolic. He is little known today*, except as the father of a famous son, Thomas Robert Malthus, author of the economic classic on population.

Yet Daniel Malthus hardly deserves this oblivion. He was to his contemporaries a fascinating personality, a man who no doubt was by ordinary definition an eighteenth-century eccentric — one whose reputation for eccentricity was perhaps due quite as much to his opinions as to his habits, though he apparently allowed neither to mar an essentially delightful disposition. A friend of Rousseau and acquainted with such figures as Hume and Wilkes, his life touched much that was characteristic of the eighteenth century without his becoming, with rare exceptions, very closely involved. He was a country gentleman of independent means, but with interests outside the normal range of the squirarchy of his day, especially in his dilettantism, his radicalism and the friendships which this involved.

In particular, he was a gardener —a devotee of the new† style, with a sense of its romantic possibilities. He became the 'ingenious friend' of Humphry Repton and may well have known Richard Payne Knight. He cuts no figure, however, in the gardening histories, but he is entitled to a modest re-introduction.

He was born in 1730, the son of a man engaged in law and finance, went to Oxford, but left without taking a degree, he travelled extensively and married in 1752. He first lived at Hadstock in Essex, where his grandfather had bought the manor, but in 1759 he moved to Surrey, which was to be his home for the rest of his life. He purchased land and a farmhouse from Abraham Tucker—a Surrey eccentric who enjoyed more than a local reputation as a philosopher. This was situated a few miles outside Dorking, near the Guildford Road between Westcott and Wotton. Here he erected his 'gentleman's seat,' with its 'battlemented parapets and gothic pinnacles,' and named it The Rookery. Here also he fashioned his garden, apparently more or less Picturesque in conception, with rustic temples and grottoes.

The house, architecturally undistinguished, still stands, with a bridle path to Leith Hill running nearby. In two hundred years, however, much has changed; the house is divided into flats and considerably altered in other respects as well; and the layout of Malthus's garden can be recognized only in bare outline.

Turning to early accounts of the estate, Manning and Bray's *Surrey* (1804-24) is particularly apropos. Bray was Malthus's son-in-law and contributed the notes relating to The Rookery: which was 'a small elegant mansion,' the siting taking 'advantage of its beauties, hill and dale, wood and water, displaying them in their natural simplicity.' John Timbs, in his *A Picturesque Promenade Round Dorking in Surrey*,* fills in this outline with interesting details. They seem a perfect reflection of Daniel Malthus's taste and temperament. Timbs points out that

'The descent from the front (of the house) is by a beautiful sloping lawn to the margin of a fine pool of water in the centre of which is a small island, overgrown with shrubs and exotics. The hill behind the house is clothed with a fine beech wood, extending a considerable distance, and intersected by serpentine walks, which formerly led to several romantic buildings, with appropriate dedications.'

Timbs adds significantly: 'of several rustic temples and grottoes, the erection of which was dictated by his poetical taste . . . few remain.' Brayley, another local topographical authority† of the period remarked that, owing to its position in the landscape, the 'seat has an air of much seclusion'—as befitted an owner who was something of a recluse. Clearly its immediate setting was one of distinctive beauty. Its wider setting was correspondingly beautiful, and even today is one of high scenic attraction, among the best of Surrey's landscapes: 'very few prettier rides in England,' was Cobbett's verdict on the neighbourhood.

Malthus, by his 'embellishment' of The Rookery, was acting in the spirit of the time. A romantic at heart, he inevitably yielded to the spell of the landscape movement that was then advancing through England. What, however, was the original source of his interest and inspiration? There was of course the force of local example—Surrey had been since John Evelyn's time, a century before Malthus, a region notable for its gardens, as the Diary of Evelyn, himself a garden designer, shows. It was a nearby Surrey garden, Deepdene, which moved John Aubrey in the seventeenth century to declare that its pleasures were 'so ravishing that I can never expect any enjoyment beyond it but the Kingdom of Heaven.' The county continued in increasing favour for garden making in the eighteenth century, a point which Defoe and later observers have emphasized. All this, with Malthus's basic predisposition, may account for much; but some specific previous circumstance might well have been the real mainspring.

It is tempting to pursue this line of inquiry; for Malthus was friendly with a family which occupies a niche in the history of English landscape gardening—the Graves of Mickleton, in Gloucestershire. Malthus's friendship was primarily with the Rev. Richard Graves,* author of the once well known *Spiritual Quixote*, who became Rector of Claverton, near Bath. Graves took pupils and Malthus sent his two sons (including 'Population Malthus') to him.

From this relationship, two possibilities open out. Either Malthus could have derived his initial impulse or encouragement from Richard Graves's elder brother, Morgan, who redesigned the gardens at the family home at Mickleton in the new manner; or he could have done so by way of Richard Graves's almost life-long friendship with Shenstone.

Morgan Graves gathered his ideas from a relative in Essex, who in turn was indebted to Philip Southcote's landscape garden at Woburn Farm, near Chertsey, Surrey, which he purchased in 1735.† Southcote is generally credited with being the first to plan and plant *a ferme ornee*, Woburn, which often served as a model for the middling type of estate. Thus there is a possible line of communication, via the Morgan family, between Southcote and Daniel Malthus.

Shenstone is also possible as a source of inspiration, at first-hand or less immediately. His Leasowes at Halesowen, near Birmingham, became (as Dr. Johnson put it) 'a place to be visited by travellers and copied by designers.' His poetry aside, Shenstone's name stands apart in the eighteenth century for a particular type of landscape gardening—indeed, just the sort that would appeal to Malthus. Their terrains had something in common, and so had their temperaments.

* For example there is no mention of him in the standard modern history, Miles Hadfield's *Gardens*.

† 'Newer' would perhaps be the more accurate word for his period but it has a pedantic air, and Daniel Malthus deplored the pedantry that was invading garden literature in his lifetime.

* 2nd Edition, London, 1823: he devotes several pages to The Rookery.

† Brayley's *Topographical History of Surrey* (Dorking, 1841-48).

* Described as an 'old friend' by Dr. James Bonar in *Malthus and His Work* (1924).

‡ This sequence has been described by Richard Graves himself, most fully in his memoir of Shenstone (1788) after being indicated in an earlier book of poems.

Richard Graves, in his memoir of Shenstone, claims that it was while visiting the Graves's home at Mickleton in his earlier years that Shenstone 'seems to have conceived the first idea of attempting . . . the laying out in the modern taste and embellishing his farm of The Leasowes.' Graves admits that Shenstone had previously made some improvement at The Leasowes, but this much is clear at least: the Graves family, William Shenstone and landscape gardening were all closely intermingled. Malthus may well have been involved in some degree, though direct proof is lacking. At all events, Malthus, as a man of taste of his time, would be fully aware of Shenstone's garden. The features of his own garden that bear a Shenstonian impress seem to suggest this, even allowing that much was done in accordance with prevailing formulae. Moreover, a Shenstone memorial was erected in another garden* near Dorking which belonged to John Eckersall, almost certainly a relative of Daniel Malthus.

Two points appear to stand out from this account of Malthus's gardening activities. It illustrates the extent to which the 'middling' man supported and enthused over the landscape movement of the eighteenth century, whereas most of the standard garden histories tend to make it mainly an affair of the large estates — the Blenheims, the Stourheads, etc. It also suggests the speed, given sensibility (or receptivity to fashion) and enthusiasm, with which the idea spread from one to another, with the result that what began in ones and twos had developed in the space of some twenty years into a more or less minor rash, at least in the southern counties.

After all his enthusiasm and pleasure, as we may fairly suppose, Daniel Malthus sold The Rookery in 1768, having occupied it only for some nine years. Was this necessity or choice? He moved soon afterwards to 'a less extensive establishment' at nearby Albury; that house no longer stands and the records are practically silent on his gardening activities there. Did he over-extend himself in the purchase and 'embellishing' of The Rookery? The signs, if slight, are somewhat ominous, but we do not know all the facts.

Happily, however, he did not abandon his interest in landscape gardening. The anonymous English translation from the French of Girardin,† published as *An Essay on Landscape* by Dodsley in 1783, is on very good evidence attributed to him.‡ Girardin was 'Rousseau's grave-digger' in Horace Walpole's phrase, from the fact that Rousseau was first buried on his Ermenonville estate. The latter was described as 'The Leasowes of France' (it included a memorial to Shenstone) and Girardin was a pioneer in transplanting the English idea of gardening to French soil; he was an ardent exponent of the Picturesque, the main theme of his book.

Furthermore, Malthus's interest in landscape design was still with him in 1795, only five years before his death. Around that period he enjoyed a 'little snatch of acquaintance'—his own words—with Humphry Repton, then the outstanding landscape designer. Repton quotes* a letter from him written in 1795, which is notable as indicating Malthus's standpoint. Thus he supports the broad professional approach of Repton, though he admits that he had previously leaned too much towards 'the Price and Knight party.' It would seem therefore that Malthus was not a champion of the extreme Picturesque, with its manifest absurdities. In fact, his middle-of-the-road attitude is reflected in his Preface to the translation of Girardin's *Essay*. The terms of his letter also suggest that he may well have visited Knight's estate at Downton, on which he writes with enthusiasm. It is not unlikely, too, that he was acquainted with Knight, since their political views were very similar, both being zealous radicals.

Malthus's Preface—a rapid sketch of gardens from antiquity to his own day in some seven thousand words—is noteworthy almost as much for what it excludes as for what it contains. The book, it has been remarked, 'somewhat annoyed the English because neither author nor translator accorded due recognition to English accomplishment in this sort of gardening'†—that is, the variety of the Picturesque; although Walpole, speaking of the French edition, recognized 'some sensible ideas in it.' Malthus, in self-defence, might plead that his Preface was not intended as an academic exercise, but merely as a light-hearted essay with a passing glance at favourite names and points of interest. All the same, the absence of any mention of Shenstone stands out, since one supposes that there might have been at least a special bond of sympathy between them: likewise unmentioned is John Evelyn, who spent his last years at the Evelyn estate which adjoined The Rookery. Yet Evelyn was himself the translator of French books on gardening (in the old style), was the author of *Sylva*, and was responsible for the well-known garden design at Albury Park, little more than a stone's throw from the house where Malthus lived when he made his translation. Their bones, however, lie in neighbourly proximity—Evelyn's in Wotton Church and Malthus's in the churchyard. Malthus, true to his instincts, allows the poets some influence on English landscape garden development—i.e. Gray, Thomson and Mason; he writes approvingly of 'gardens marked by the poetical spirit'; is appreciative of Walpole's history of gardening; and also of William Kent. His Preface, with its sprightly quality, also has a casual air about it, and this may well be symptomatic of the character of its author.

This translation of Girardin's little book indeed offers the clue to much in Daniel Malthus's life. The frontispiece consists of a view of Rousseau's grave at Ermenonville, and in the Preface he explains the reasons for his pleasure in the subject—in part because 'it is wrote by the *friend of Rousseau*' (his italics) and from scenes which 'realise some of his [Rousseau's] most beautiful descriptions,' recalling his 'sublime pictures of Switzerland': all this several years after Rousseau's death and when Malthus himself was over fifty. Rousseau was still, as he had long been, a central influence in his life. Malthus's regard for him was little short of idolatry. This is evident from his surviving letters to J–J, as when Malthus pleads, in a letter in 1767:

'Est-il possible, Monsieur, que vous ayez reçu ma lettre, et que vous me refusiez les deux mots que je vous demandois. Je ne veux pas le croire. Je ne donne pas une fausse importance à mon amitié. Ne me respectez pas, mais respectez-vous vous-même. Vous laissez dans le coeur d'un être semblable au vôtre une idée affligeante que vous pouvez ôter. Ce coeur qui vous aime si tendrement ne sait pas vous accuser.'

Doubtless the appeal of Rousseau lay in his attitude to nature, as one of the founding-fathers of the Romantic Movement; the character of his political doctrines, with their equally romantic stamp; and his momentous educational theories. Malthus was closely concerned—one of the few records of him as a man of action—in the settling of Rousseau in England after his flight from the Continent in 1766. In concert with Hume, who had brought J–J to England, Malthus was anxious to house him in his own neighbourhood, and during this period Rousseau, accompanied by Hume, visited him at The Rookery. This plan, however, was abandoned (through no fault of Malthus) in favour of J–J going to the Peak district. In all the subsequent quarrels and recriminations that engulfed Rousseau and his friends in this country, Malthus's relationship with him was entirely unruffled and remained so till J–J's death.

Their relationship was perhaps influenced by a soothing recreation which they had in common: their botanizing. Malthus, besides his interest in the poetics of landscape gardening, was a keen student of botany. He helped Rousseau with botanical books whilst he was in England and these books, with Rousseau's name in them, together with a box of plants given him by Rousseau, appear in his will.

After Rousseau's death in 1778, Malthus eventually transferred much of his hero-worship to William Godwin, extremist radical philosopher and propagandist and interpreter of the French Encyclopaedists in England; now most widely remembered as the husband of Mary Wollstonecraft and the father-in-law of Shelley. It was Daniel's Godwinism which was the immediate occasion of his son Robert's book on population,* for Robert had formed his views largely by way of reaction to his father's. Robert's sub-title offers 'Remarks on the Speculations of Mr. Godwin,' while in the Preface Robert states that the book 'owes its origin to a conversation with a friend on the subject of Mr. Godwin's Essay' in his *Inquirer*. That 'friend' was Robert's father, as he disclosed later, his father having 'warmly adopted the opinions of. . . Godwin,' which had 'often been the subject of animated discussion between them.'† Thus Daniel Malthus, despite 1789 and its aftermath, was a thorough-going radical to the end. In other ways his outlook was by no means conventional for a man of his time and circumstances. On the whole, he remained faithful to his ivory tower, a fireside philosopher and confirmed dilettante, taking no active part in local or national affairs.

It is scarcely surprising, therefore, that when he died at the age of seventy in January 1800 *The Gentleman's Magazine* should have referred to him, in an obituary note, as 'certainly an eccentric character in the strictest sense of the term.' He is also described as 'a man of taste and learning,' which in its period context is hardly open to question. His son-in-law William Bray emphasized his 'most pleasing manners' and his 'most benevolent heart,' which rings true enough. Although there is no known adult portrait of him, this hardly seems to matter, since a picture shadows forth, from the scanty records of his life, of a man who, whatever else may be said of him, was eminently amiable and likeable.

* Burford Lodge, built by John Eckersall, 1776: Thomas Robert Malthus married into the Eckersall family.

† Rene Louis Girardin (Viete. D'Ermenonville), *De La Composition des Paysages*, Paris, 1777.

‡ On 'very good' rather than irrefutable evidence, because Robert, after his father's death, denied that he (Daniel) had ever published translations. There is, however, no reasonable doubt that, in regard to Girardin's *Essay* at any rate, Robert was mistaken. Thus the style—a very distinctive style—together with the finer shades of thought and feeling of the translator's Preface and his notes, accord perfectly with all that we know aoout Daniel Malthus otherwise. Humphry Repton, with the advantage of acquaintance with Daniel Malthus, refers to the book as 'his translation'; Lord Keynes, who saw the remains of Daniel Malthus's library some thirty years ago, found a note in a copy of the book there which attributed the translation to Daniel.

* *Observations on The Theory and Practice of Landscape Gardening*, 1803.

† E. W. Manwaring, *Italian Landscape in Eighteenth Century England* (New York, 1925).

* *An Essay on the Principle of Population, as it affects the Future Improvement of Society.* (London, 1798.)

† Bishop Otter, a life-long friend of Robert, from whom he had the information.



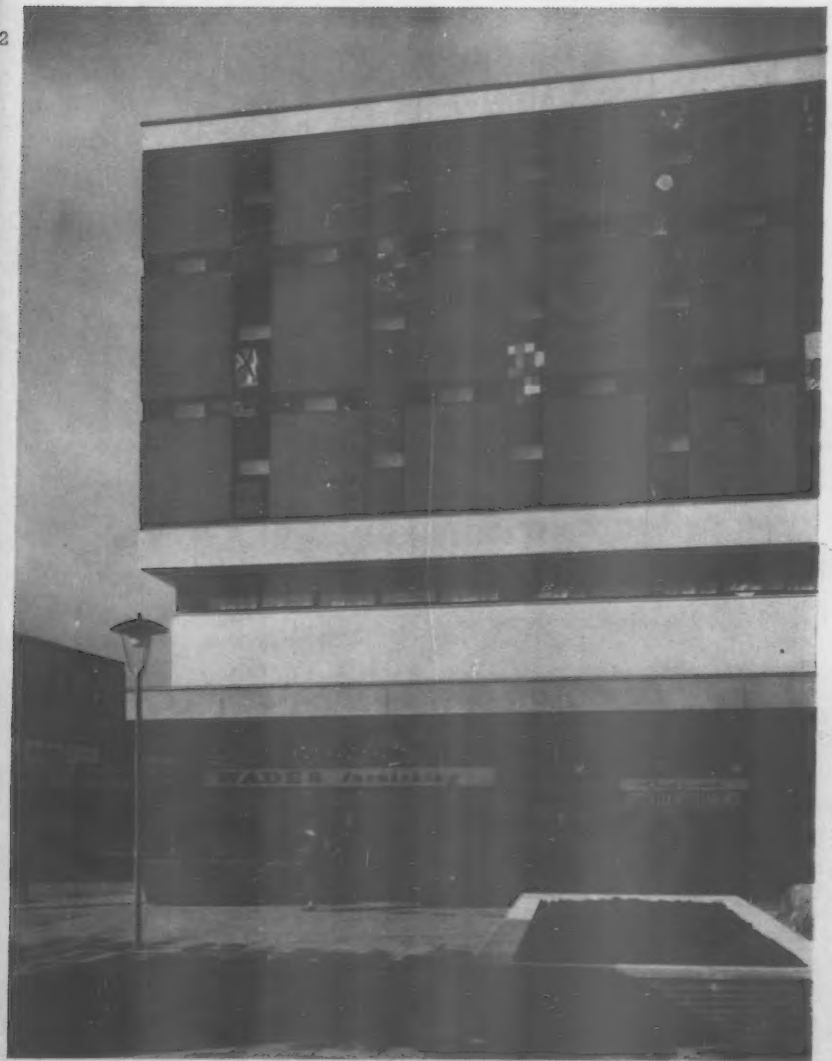




1

1, night view from the south-east. On the right is the glazed entrance tower. 2, close-up of the south-east corner showing a detail of the mosaic decoration by Fred Millett on the walls of the dance hall. The interior of the dance hall is artificially lit—the glazed panels in the wall are lighting units to give an exterior pattern to the building at night as in 1.

2



DANCE HALL, COVENTRY

ARCHITECT: ARTHUR LING
(City Architect)

Incorporated in the central precinct by the city council as one of their measures aimed at bringing life and movement back into the pedestrian shopping area after the shops have closed for the night. The dance-hall block is in the middle of the shopping area, and completes the development at the intersection of the two main pedestrian precincts. Shops occupy the basement, ground and first floors, with service access at the rear, and the dance hall itself is at second floor level. To avoid any interruption of the shopping frontage, and to give the dance hall entrance a separate identity and significance of its own, a glass entrance tower stands forward of the main building in Smithford Way, linked by a bridge to the foyer on the second floor. The tenants of the shops should be responsible for their own shopfitting, and the Mecca organisation, who have leased the dance hall, are responsible for its interior. These pages show only the exteriors, designed in the City Architect's department.

The general massing of the main block conforms to the established pattern of the precinct, but because of the building's dual function, the elevational treatment has been handled in a different way. Above the ground floor canopy the shops are faced with Portland stone, which acts as a plinth to the dance hall above but is separated from it by a continuous strip of glazing. The dance hall itself is outlined at top and bottom by fascias of white Sicilian marble and is faced with rectangular panels of grey facing bricks set against a background of brightly coloured mosaic, in an abstract design by Fred Millett. A series of rectangular lighting units is incorporated to provide a regular, illuminated pattern after dark. The entrance tower, and the lift shaft within, are fully glazed so that all vertical movement is visible from the outside. The top row of glazing is coloured to act as an opaque screen to the lift motor room and a background to the neon lettering.

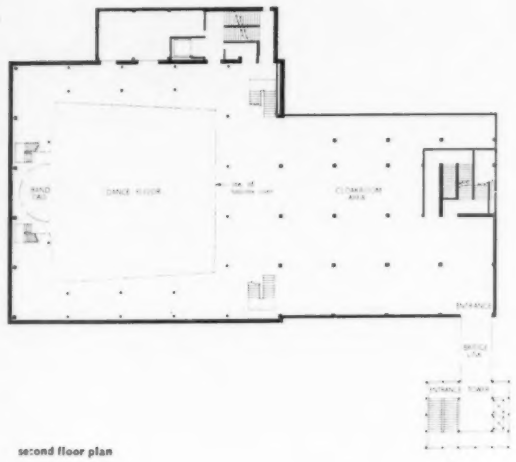
The structure of the dance hall block is of reinforced concrete with the basement walls designed as deep beams carrying the basement and ground floors as well as lateral earth pressures, and partially built over the newly culverted River Sherbourne. The roof is spanned by deep steel trusses, within which are heating ducts and catwalks. The entrance tower has an exposed steel structure consisting of 6 in. box-section stanchions welded to transomes, forming a frame at 6 ft. centres to take the galvanized steel sashes.

Principal architect, D. Beaton. Group architects, K. E. Bradley, W. M. Armstrong, R. J. Edwards, H. W. Pearson. Quantity surveyor, R. F. Lear. Consulting engineer, Granville Berry (city engineer and surveyor).

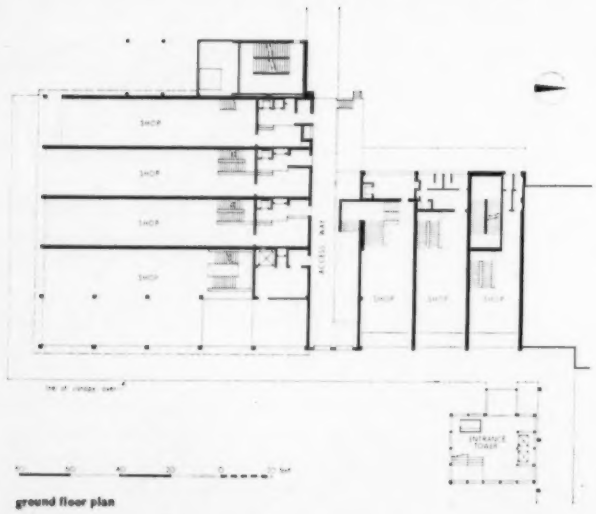
Dance Hall, Coventry



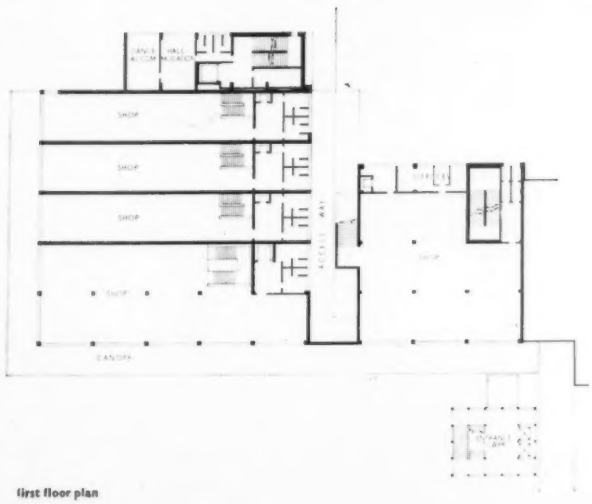
3



second floor plan



ground floor plan



first floor plan

3, close-up of the entrance tower at night. 4, from the south-east.

4





5

5, from the west. 6, the entrance in the three-storey block. 7, typical ward interior.



INFIRMARY, ROYAL HOSPITAL, CHELSEA

ARCHITECTS: MINISTRY OF WORKS

To replace the infirmary destroyed by bombs in 1941. Built for the War Department to serve the 400 pensioners at the Royal Hospital, it is sited east of the main buildings with its approach from Chelsea Bridge Road.

The L-shaped plan has a two-storey ward block and a three-storey block for staff and out-patients, the latter with a terrace along its whole length. The ward block provides 72 beds in four wards, and eight single rooms. The staff block contains the doctors' consulting-rooms, examination-rooms, dispensary and X-ray rooms and, on the upper floors, bedrooms and recreation rooms for nurses, male orderlies and domestic staff; also a matron's flat.

The building has a reinforced concrete exposed frame, finished smooth with a Portland stone aggregate. Wall-panels are 11 in. cavity brick or metal window units with green slate panels beneath.





6



7

EXHIBITIONS

THE AMERICAN MUSEUM IN BRITAIN

Claverton Manor in Somerset has become The American Museum in Britain and opens to the public this summer. It is the first museum of American decorative arts to be established outside the U.S.

Much of the furniture and furnishings so far collected has more in common with the things our forebears made for themselves than with the things they made for their masters, and I think many people will find the atmosphere of this museum far less remote and in a sense less 'alien' than England's stately homes.

The house, 1, was built in 1820 to the designs of George IV's architect, Sir Jeffry Wyatville, and is dramatically sited on the crest of a hill, presumably for the sake of



1

the marvellous view across the valley of the Avon. It has a charming central staircase hall and a very pretty roof-light, but according to Ian McCallum, the director of the museum, the rooms were of little architectural consequence, and they have been drastically and ingeniously altered to accommodate a series of display rooms designed to re-create the atmosphere of some typical American homes from the seventeenth to the nineteenth century. The example reproduced, 2, is an early nineteenth-century New England bedroom with stencilled wall and bedspread. The emphasis is upon settlement and domesticity in New England and some of the other Eastern states, but the reconstruction of an eighteenth-century tavern in Massachusetts, with a fenced-in corner bar to protect the barman from his customers, is a reminder that all the roughness was not out west.

Decorative crafts which have never been practised in this country—I have in mind such things as the stencilled floors, the sponge-painted furniture and the hooked rugs—make a remarkable contribution to the general effect of an American way of life, and although there was no place for their work in some of the later interiors, where the original occupants were evidently exercising a consciously superior taste, it is the spirit of the men and women who practised these crafts that gives the museum its unique atmosphere and different vibration. Their simple but happy discoveries give one the impression of having been made under the spur of expediency, as if they were intended as *trompe l'oeil* substitutes for more expensive effects. But there is no deception. The love of making has produced its own standards and given each such craft its modest but total independence of Europe.

The prevailing sense obtained in the museum of being in the presence of an art of the people by the people for the people is supported and underlined by a loan exhibition of works from the famous Abby Aldrich Rockefeller Folk Art Collection at Williamsburg, Virginia. This exhibition has been installed in the stable block, an interesting semi-circular building which has been converted into a modern and peculiarly effective gallery. The deep curve makes it impossible to see the whole of the interior from any single viewpoint, and because it keeps so much of its space in reserve, the visitor is in a state of anticipation up to the last moment of viewing. It is almost the perfect solution for the one-room gallery.

The 'folk' art of White America has to bear this faintly denigratory name because it is the work of men who were skilled in various crafts but had no training in the techniques of the figurative arts and no knowledge of art history. It has some of the characteristics of the arts produced for provincial courts and by peasant communities in Europe, but was not made for a closed society and does not endlessly reproduce a few frozen conventions. The paintings were made by furniture decorators, coach-painters and house-painters in response to the need of an expanding democracy for a figurative art. Up to the middle of the nineteenth century, when its main functions were abruptly taken over by photographs and reproductions, it had an expanding market, and although most of the work is concentrated in the Eastern states where craftsmen were more plentiful, there was no lack of commissions for the artisan-painters who went into the agrarian South or the pioneering West. The stiffnesses and quaintnesses of the paintings were not an expression of conservatism; they were, so to speak, temporary solutions, documents of an art-desire which contained the seeds of a specifically American contribution to painting.

The qualities of the craft-work which find their way into the paintings—the linearism, the simplification of forms, the feeling for the silhouette—are beautifully exemplified in most of the objects on view. The Indian archer in sheet iron, 3, is a locomotive ornament. Figures of Indian warriors were particularly popular with the early train crews, who were often permanently assigned to a particular engine and used these figures both as talismans and as emblems of possession. They were probably made by some of the men who fashioned the weather vanes. There is the same vivid use of the silhouette in a fine iron vane of a snake, 4; and a superb polychromed wood vane of a cockerel, 5, discloses powers of inventive formalization which bring to mind some of the great animal conventions of primitive and archaic cultures.

Hunting wild fowl over decoys, an art



2

which the White Americans learned from the Indians, gave the 'whittlers' as they were called an equal opportunity for fine carving, and although their formalizations had to take more account of appearances, some of them are quite superb. There were two kinds of decoy, floaters for the water birds and stick-ups for the shore birds. The example here, 6, is a stick-up of a blue heron.

The lines of a child's hay-fork made of wood, 7, have the same spontaneous elegance as the lettering and silhouettes of footwear in the sign painted around 1790 for the bootmaker, Josiah Turner, 8. But it is in the paintings, almost always more naïve than the craftwork, that the craft qualities mingle with the dreams and pieties of the people and bring out the sense of America as a place with what D. H. Lawrence called 'a different polarity with different stars.'

The symbolic mourning card was a popular wall decoration. The example shown in the frontispiece on page 372, top, containing the more or less fixed elements of church, willow tree, mourners and monument, is in memory of Polly Botsford who died in 1813, and the two little headstones commemorate the early deaths, many years before, of two of her children. Probably the handsome tomb on the card has no relation to the facts and was simply a poor man's way of doing the right thing by the dead. It seems to foretell the Whispering Glades Memorial Park and the elaborate gangster funerals, but it may well have functioned, in an oblique way, as a card of identity for the mourner, in a rapidly changing world.

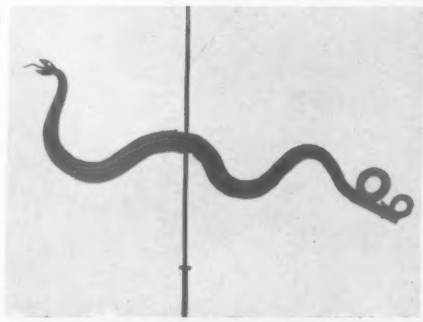
But the portrait is of course the best card of identity, and it was the portrait that was in the greatest demand. The portrait of Polsa Pianna Bull Dorr, 9, for instance, is one of four paintings in the exhibition devoted to the same family, but it is difficult to tell whether there is a family resemblance in the portraits or whether they look alike because they were all painted by the same artist. They were done in 1815 for a well-to-do physician living in New York, who, incidentally, invented the first threshing machine. It is an indication that these primitive portraitists worked for all classes of society, and that either their clients preferred these crisp stiff linear formalizations to more naturalistic modes or that there were not enough academically trained painters.

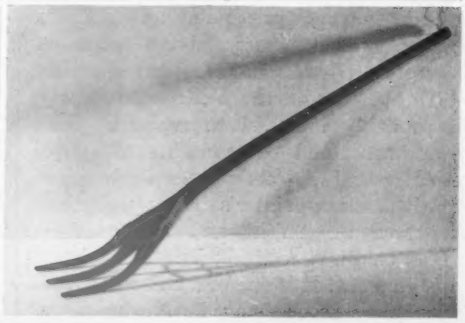
The portrait of Lydia and Tabitha, 10, by an unknown artist, was painted some twenty years later, but is even more primitive, and one suspects that the identity of the sitter is established more through the dress she is wearing and the presence of her cat than the treatment of the head. The costume details suggest that


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10

the painter was trained as a furniture decorator.

Identification through incidentals rather than a definite likeness is carried to extreme lengths in 'The York Family at Home' (see frontispiece, page 372, bottom), painted by Joseph H. Davis who gave up farming to work as a portrait painter, travelling through south-east New Hampshire. Over a hundred of his watercolours have been identified, and although they are practically identical in composition they have different details. The name of the news paper changes, the child is older perhaps, or not there at all. The cat changes position and the table its shape. It's clear, in fact, that he put in just enough things that the clients could recognize as their property to enable them to see the purely schematic figures as themselves. It brings to mind Elizabethan portrait painting, with its conventional likenesses, elaborate attention to costume, jewels and emblems of rank.

The picture on the York family's wall is probably intended to represent their own house, and the painting of simple architectural subjects was peculiarly suited to the artisan-painter's linear style, and his love of 'finish' and sharp edges. 'Poestenkill, New York, Winter,' 11, is a case in point. It is one of a series of five in which the seasons change but the buildings, the people and even the horses remain exactly the same.

The most important painter in the exhibition is Edward Hicks, and it is in his work that one perceives most clearly the links with other aspects of American painting. 'Penn's Treaty with the Indians,' 12, based on a print of Benjamin West's painting of the same subject, brings out his naïvety and his need for a certain kind of perfected clarity, or his adherence to what might be called an ideal of total emergence. In this picture, even the names of the people who have signed the treaty can be clearly seen. He puts the same scene into the background of his several versions of 'The Peaceable Kingdom,' which illustrates the biblical prophecy that the lion will lie down with the lamb. Hicks was apprenticed to a coach-maker and became a sign-painter. He was an ardent Quaker and became quite famous as an evangelical preacher, but he suddenly realized that he was proud of his oratory, and decided in a spirit of self-chastisement to devote himself to picture-making and became in his own words 'nothing but a poor old worthless insignificant painter.'

The most beautiful and haunting picture in the exhibition is Hicks's 'Leedom Farm,' 13, painted in 1849. It is like a counting of blessings. The farmer himself is there, and his wife, father, mother, brothers, sisters and nephew, together with all the stock, standing slightly apart from



11



12



13

one another and perfectly still, for a magical stock-taking. The treatment of the farm buildings is extraordinarily fine; they have somehow been transformed into symbols of order and belief, as if they were places of worship. Every detail is matter-of-fact yet remote. It is a dream of a settled believing community. And it probably remains an American dream. The same quality can be found in the paintings of the American luminists, in the work of present-day precisionists like Demuth and Sheeler and in some of the American dwellings which have made so striking a contribution to modern architecture.

The director of the American Museum in Britain is probably much more keenly aware of these lines of continuity in the American arts than I, and the fascinating material he has already collected, together with his plans for collecting and exhibiting contemporary work should lead to a better understanding here of the strength and validity of American idealism.

Robert Melville

PLANTS

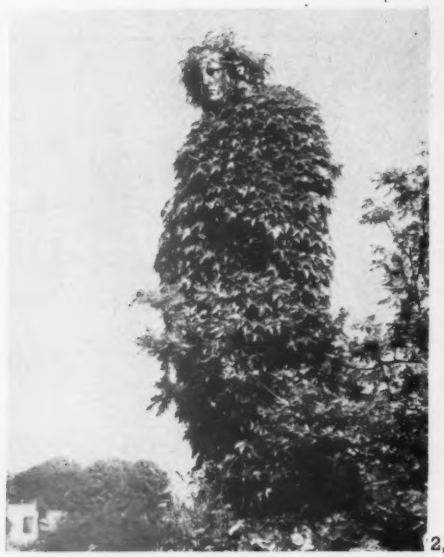
CREEPERS

There can hardly be an architect alive who is not aware of the detrimental effect on walls of ivy and Virginian creeper. Both practically eat the mortar and are guaranteed long-term demolition agents. Ivy, the poor man's tile-hanging, is the worst. What is often wanted is a self-clinging vine-like type of climber which will cover a blank wall without ultimately pulling it down, and prosper in sunless aspects. There is nothing better in this respect than *Parthenocissus Henryana* (syn. *Vitis Henryana*). It is neither sufficiently known nor grown.

1, Parthenocissus Henryana.







2,3

2, Virginian creeper netting a statue in winter (taken in the Crystal Palace Gardens). 3, the same statue in summer.

This non-fruiting deciduous vine climbs by means of very small suckers but takes a light hold. It has a beautifully marked five-fingered leaf form, dark green with silver veins, and wine-coloured underside, and creates a delicately ruffled rhythmical effect. A single plant is capable of curtaining a wall 15 ft. high and wide in three or four years, requiring only initial vine-eye support.

The roots should be placed at least 9 in. from the wall in a well-drained situation, the hole being partly filled first with well rotted compost and a dressing of leaf mould applied each spring. It is difficult to take cuttings, unlike fruiting vines, but it can be propagated by layering. It develops its best foliage colour in partial shade. Prune dead growth in late spring. This wall covering combines well with one or two unpretentious old-fashioned rambler roses such as *Félicité et Perpétue* (Hillier's), which have clusters of white pompons with pinkish tinge, and makes a beautiful dark background for tall lilies.

Ivy and Virginian creeper should be deployed not as agents of destruction but to produce remarkable effects on indifferent statuary, on specially designed vertical structures, on tombstones and treestumps. Why should not architects construct larger-than-life figures in rough concrete destined to be clothed with ivy, producing the effect of mysterious outdoor presences, perennially green? There is a very impressive 'green' garden on the chalk down near Wilmington, a formally set-out pattern of ivy-covered pillars linked by rope swags similarly clad, on a rising slope of thyme-encrusted turf. I notice a tremendous neglect of the vertical element in garden planning.

In Victorian times ivy was also used as a formal edging for flower-beds. This was particularly effective in sunless front-gardens where the centre was taken up with ferns and other shade-flourishing plants like Epimedium (*E. versicolor sulphureum* is a particularly good one) and Heucherella. Now that more imagination is being used in setting out these small areas with paving, pebble-pattern, concrete disks cast in wheel rims, sculptural three-dimensional effects can be created with plant material of this kind. The Sunningdale Nurseries, Windlesham, Surrey, list ten ivy species, some of which are particularly suitable for use as ground cover. See their *Modern Florilegium* by G. S. Thomas. A London gardener I know grows fourteen different ivies in an overshadowed space, each one having a fine leaf form, the varying tones of green providing subtle effects. Some of these fine leaved ivies are sold as 'Indoor Plants,' Thomas Rochford cultivates many of them for this purpose.

Patience Gray

LAMP-POSTS

DECLINE AND FALL IN CAMBRIDGE*

The spatial intricacy of Cambridge has been well described by Dr. Pevsner in his 1954 volume in the Buildings of England series: 'Large and small, monumental and intimate, stone and brick, man-made and nature-made stand close to each other and often interwoven with each other. Small court follows large court, turfed court follows cobbled court, open court follows closed-in court. Open courts, i.e. courts open on one of their four sides . . . establish a relation between college space and surrounding outer space rare at

*Photographs by Andrew Schumann.



1,2,3

Oxford. . . . As for contrasts of scale, the chief source of delight is the survival of cottage property in the streets of the town close to the colleges.'

Neither in Dr. Pevsner's book, nor in the massive volumes recently published by the Victoria County History and the Royal Commission on Historical Monuments, is there any study of the specific ways in which this tight yet informal network of courts and passageways is linked together by street furniture. In the last ten years, one of the principal links has been gradually dismantled—the splendid series of early nineteenth-century lamp-posts and lamp-brackets.

This first scheme, begun in 1823, was carried on into the 1840's, the final circuit consisting of 362 gas lamps. The lamp numbers of the original numeration, in force until 1926, can often still be made out, painted on nearby walls. All the lamps survived into the present century, though the 1890's replaced the squat but dignified lanterns with a more conventional tapered design. Removal started just before the last war; in the main streets the remainder were replaced in 1955–8. Only in the side streets can still be gained some idea of their original quality; and these are at this very time making way for yet another scheme, begun in 1960.

At first sight the old lamps seem identical in design. The strong classical shape, like most English Renaissance work, stops well short of monumentality. The survival of such traditions into the mid-nineteenth century is paralleled in most country towns, in Literary Institutes and Corn Exchanges. Like these much neglected and little studied buildings, these lamps show, within the classical tradition, a remarkable variety of design and siting.

There are 13 set types of design, and 26 variations on them. They were conceived as an integral part of the street design, and were placed in key positions, not only to give light in the hours of darkness, but also to define more closely the spatial relationships by day. The pictures reproduced here show how, in the open spaces, their standard size forms an easily read scale of the space and mass of the surrounding buildings, like a measuring post in an archæological photograph. In the narrow connecting passageways, brackets of differing design sprout from the side walls in silhouette and lead the eye towards the next open space, marked by a lamp standard.

Lamps in the colleges, of the same period, help to link the courts to the cottages, internal space to external. The finest series is that designed by William Wilkins for King's, 1. It can be seen in this picture how Wilkins's lamp standards create a spatial passageway between the giant walls of the chapel and the broad flat lawn. The design of the lanterns echoes that of the cupolas. The human scale of the standards bridges the gap in scale between the chapel and the houses in King's Parade seen across and through Wilkins's screen.

2 is taken in All Saints' Passage. This gaunt cleft between Salvin's Whewell's Court of Trinity on the left and the tall Regency brick wall on the right is closed by the contrasting prettiness of the trees in the former All Saints' churchyard. The bracket and the standard are unsentimental in linking passage and tree.

In Round Church Street, 3, the standard is placed decisively in the centre of the passageway. On the left, Waterhouse's Union Society, remodelled in 'early modern' by Harold Tomlinson (1932). Cottages on the right are to be demolished this summer to make way for a central car park.

The lamp in Senate House passage, 4, stands beside the Gate of Honour at Caius; attempts have been made to have it removed for the tourist cameraman's sake. Yet seen through the gate it acts as a splendidly firm axis for the complicated double-S bend of Senate House Yard—Cambridge's most satisfying paved space, enclosed by Gibbs's railings. Notice in the photograph how it links the bicycle and undergraduate to the monumentality around.

Brackets at Caius are splendid representatives of that High Victorian *brio* so much more in evidence at Oxford. Waterhouse's building is much abused, because it has a silly tower on the best site in Cambridge; but, internally, Tree Court is an object lesson in the relationship between high and low buildings in a college (a contentious question to-day), and in the interpenetration of courts by arches and passageways, clearly marked by lamp brackets. 5 shows Waterhouse's excellent



4



5

florid brackets of 1870, linking the much-abused five-storey block to the intimate two-storey buildings on the other side of the court. These two brackets emphasize the paved path to the dark passage in the corner; the path is sucked down four steps and changes direction twice to reach Gonville Court.

The rot set in some time between the Arts and Crafts baroque brackets designed by George Gilbert Scott (son of Scott) at Pembroke (1883), and the loathsome pieces



6

of 'concrete Georgian,' 6, dumped in the Backs next to Clare by Sir Giles Gilbert Scott in 1925. No comment is needed on these. The avenue which used to hide the lamp in the picture has just been cut down, and no decision to replant it is to be taken for eighteen months.

In 1955 the City Council began the scheme of electric lamps in the main streets. These lamps were designed by Sir Herbert Manzoni, City Engineer of Birmingham and now President of the Institution of Civil Engineers. The art touches, fluting, etc., were supplied by Sir Albert Richardson, then President of the Royal Academy. Big names, big lamps. Richardson's columns, executed in best bronze at a colossal cost, bear a close resemblance to those he was installing at the same time in St. James's Church, Piccadilly. Manzoni's lights, with their cylindrical lanterns, have almost no downward reflection, and glare balefully into first floor windows, while leaving pools of darkness in the streets beneath. In Trumpington Street they are at times placed as near as 34 feet to each other. At night one is aware of nothing but a grandiose procession of triumphal columns of light leading nowhere. The Royal Fine Art Commission gave its consent. The lamps have been objects of derision ever since they were put up. 7 shows Sir Edward Maufe's king-size bungalow at St. John's providing the background to a terrible muddle, with Richardson's columns sticking up everywhere. This is the vital road junction of Cambridge's two axes, Trumpington Street—King's Parade—Trinity Street and Hills Road—Regent Street—St. Andrew's Street—Sidney Street. Note the garage at this awkward spot, jammed in to a medieval cottage. It is all very sad and messy.

8 (St. Catherine's Forecourt), is a Trumpington Street lamp that was to have been removed by the Council, but the college bought it and its neighbour, a praiseworthy act. The college has since painted them black and gilded the ears and pinnacles of their lanterns. The authorities have left ungilded their 'Bus Stop' notice.

For their 1960 scheme the Council decided to 'go modern.' The lamp-standard they chose is quite a good design, but not for Cambridge. A stockade of them as in West Road, 9, is unpleasant. Larger lights would have been better. Note the solidity of the old lamp in the foreground. An ironic result of the subtopia controversy is the popular idea that concrete lamp posts are irremediably bad. So they are on new housing estates, where their brute force overshadows the flimsy houses. Cambridge is one of the few places where the buildings would stand up to the bulk of concrete.

The aluminium sodium lamps being installed at Cambridge are flimsy in contrast to buildings, and their small size means that on main roads they have to be placed exceedingly close together as the picture shows. At the same time, because of the City Council's refusal to increase the voltage on the old brackets, as has been successfully done in most of the colleges, small pedestrian alleyways are being floodlit like the 'imitation motorways' of which Ian Nairn gave warning in 'Counter-Attack.' These lamp posts would be ideal in a small housing estate—and that is not a denigration of them.

Public reaction in Cambridge has been equally hostile to these new lamps. One sort of opposition has resulted in the Trinity Lane brackets in Bursar's Antique. The other sort, those people who want to see decisive modern design in keeping with Cambridge, are at least succeeding in architecture, with Denys Lasdun designs for Fitzwilliam House and the Cavendish Site. But in street furniture the same prejudices which have ruined Cambridge architecture for fifty years seem still to be rampant.

The beauty or ugliness of the lamps



7



8



9

themselves is only of secondary importance. Most of the 1823 designs are unbeautiful when taken out of their context. It is the context which is all-important. The real fault of these recent designs is not that one is 'Georgian' and the other is 'moderne,' but that, unlike the 1823 designs, *they only give lighting*. By day they do nothing but stand in the way. The contrasts of scale, the connection of different shapes and different spaces, of monumental and intimate, of court and cottage —these are totally ignored.

One of the most dangerous popular ideas of subtopia is that it is the design of the lamp post itself, in isolation, that matters. Thus, at Cambridge, instead of 26 variations in design and a different siting policy for each street, we have a uniform design and uniform siting. The flexibility of a creative mind, and the vision of a dynamic society, variations within a greater unity—these are missing; the standard type is supreme.

Two things could be remedied almost immediately. It is intended to floodlight the centre of Cambridge to the uttermost yard. Meanwhile in Romsey Town, the Victorian semi-slum where a large proportion of Cambridge people live, cut off from the rest of the town by the railway and thus unnoticed by the tourist or by royalty, the lighting is atrocious. In some streets the best light is given by pubs. St. Philip's Road and Suez Road and Ross Street may not be 'important' areas of Cambridge from the point of view of prestige, but ordinary people live there in high density housing, and need street lights. At the present rate, they will have to wait some years, unless the unlikely happens at the council elections.

Secondly, and unbelievably, the City of Cambridge, although just applying for County Borough status, has no city architect. Mr. T. V. Burrows, the city surveyor, an engineer by training, has in his charge not only the city's work in those two departments, but also its architectural policy.

Nicholas Taylor
David Watkin

COUNTER-ATTACK

ALBION HILL, BRIGHTON

Brighton's post-war development has taken an extremely long time to get under way. The familiar picture of vast slum clearance sites and piecemeal rebuilding is perhaps even more marked here than in other towns of similar size. Decisions are made, then revoked; fresh schemes are prepared only to be submitted to endless committee wrangling; while the sites, mainly just behind the main shopping and business streets of the town, gather rubbish, and people wonder whether anything will ever be done.

However, the first really big scale piece of redevelopment, the Albion Hill scheme, is now well advanced. The site is a remarkable one; it rises steeply from the Valley Gardens and St. Peter's Church to a height of nearly 150 feet, with extensive views over the town, 1. Clearly it presents a



1

unique challenge to do something different; to accentuate the character of the site in the layout of the buildings. After all, steeply sloping land of this kind should give far more opportunity for visual drama and excitement than a flat site. But this opportunity has, so far, been missed; perhaps not even recognized.

The general view of the scheme, 2, shows how the layout makes the land look much flatter than it really is. Of course, there are good reasons why two- and three-storey buildings should be sited on the lower slopes and twelve-storey flats on the higher, and steeper, parts. But the planning has a rigid rectangularity, and there is no attempt to make interesting use of the contours. Such faults would, perhaps, be less noticeable if the design of the tall blocks were really first-class. But although they have certain pleasant details, such as the unobtrusive glass lift-motor enclosures and the crisp balcony panels, the general effect, particularly when viewed from below, as in 2, is graceless and heavy. Borough Surveyors' architecture is usually either gimmicky, cliché-ridden, pseudo-contemporary or, as here, just plain stodge. Buildings of this size are bound to dominate



2

a large area of the town, and the greatest consideration should have been given to their architectural character.

The view of Trafalgar Street on the other side of the valley, with the Albion Hill flats



3

towering in the background, 3, makes a pointed contrast. This street, even in an unusually quiet moment, as in this picture, has liveliness and a personality all its own; a diminutive square adjoining it, 4, is the



4

essence of domestic charm. Is it wishful thinking to imagine that a genuine hill town in miniature could have been designed for this site, instead of a mere collection of packages?

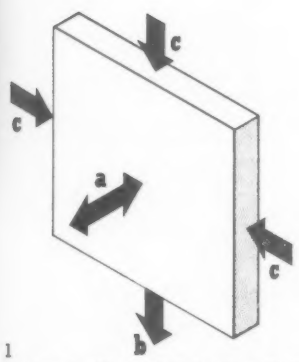
However, most of Brighton's derelict areas, some very close to Albion Hill, have still to be tackled. Sir Hugh Casson's appointment as consultant proves that the Brighton council are prepared to show concern about the form future developments will take; and one only hopes that his influence will spread beyond the specific limits of his brief.

Geoffrey Newman

SKILL

HEAVY CLADDING PANELS, 2

R. Michael Rostron completes his account of heavy cladding panels by considering fixing, taking in turn panels fixed to a structural frame, panels applied to a masonry backing and panels used as permanent shuttering.



1

1, *forces acting on the panel: a, wind load; b, dead weight; c, forces due to relative movement.* 2, *principle of 'support and restrain.'*



2

The method of attachment of heavy cladding panels is governed principally by the type of structure which receives the panels. Three basic fixing methods are apparent:

1. As an applied facing to a structural or non-structural frame with panel fixing
   (*a*) at top and bottom
   (*b*) at sides
   (*c*) on all edges.
2. As an applied facing to a solid continuous backing.
3. As permanent shuttering to an in-situ cast backing.

The first and last methods are probably the quickest and most economical, but against this is the fact that the first method usually calls for a separate inner skin or backup wall. On the other hand it is the only method in common use which allows erection to take place from the inside without scaffolding.

Fixing criteria

In all cases where the panel is applied, although actual fixing details may differ, there are important basic principles which must be followed. These are concerned with security, watertightness and erection:

1. Every panel is subjected to forces due to its own weight, to wind load and to movement of adjacent elements, 1. It is important to note that the self weight of the panel and the wind load act in different planes, and in order to oppose these forces the panel must be secured in two directions—it must be held up or *supported* and held back or *restrained*, 2. Sometimes both these functions can be performed by the same fixing device, but it is more usual to make separate provision for supporting and restraining the panel.

2. As 1 shows, the panel is subjected to forces perpendicular to its edges due to relative movement of panel and adjacent panels or structural elements. Such movement may be caused by thermal or moisture changes in the panels or by settlement or loading of the structure and, although its effects can be minimized by careful design, movement and the forces it sets up in the panel can never be eliminated. It is easy to be misled into thinking that the effects of very small dimensional changes are equally small. An increase in length of, say, 1/100 in. in 20 ft. may appear negligible and yet, if the expansion is not allowed to take place longitudinally, a bowing of *one inch* is produced—sufficient to pull panels away from supporting cramps or corbels and cause the potential collapse of the facing. To avoid this, all joints and supports must be flexible enough to allow some degree of movement in individual panels without producing cumulative stresses in the facing.

3. In all cases where the panel facing is intended to form a weatherproof skin, the principles of water exclusion followed in light cladding should be used. Briefly, this means making the panel facing as watertight as possible by attention to choice of materials and care in joint design and, at the same time realizing that a small amount of water penetration is inevitable and making provision for its removal. It is usual to allow for this removal by means of a cavity behind the panel with drainage holes or slot at its foot. Care should be taken by means of flashings to direct penetrating and condensed water towards the outside, and upstands should be used to prevent wind-blown rain entering the cavity through the drainage outlets.

4. However accurately panels are made and structure erected, the dimensional accuracy of shop work will always exceed that of site work. Much research is required on the provision and magnitude of adequate clearances and tolerances in building components before the position is clarified, but dimensional variations will probably never be eliminated. All methods of attachment of panel to structure must therefore be adjustable in three dimensions to allow for these variations and to ensure correct alignment of panel faces and edges. Generally, attachment devices designed to allow for movement after erection will allow for adjustment during erection, but there may be instances where this is not so.

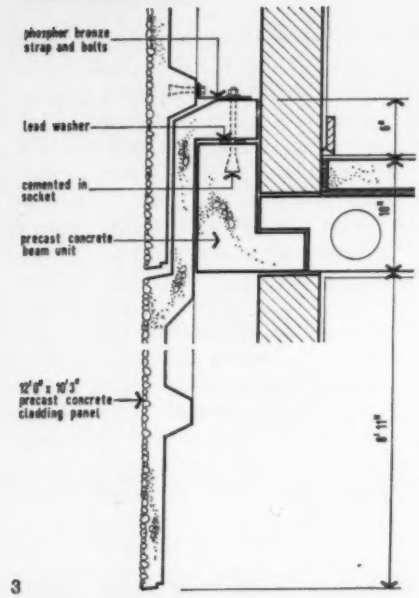
Fixing to a structural frame

The logic of attaching cladding panels to structural elements, thereby avoiding the need for a secondary supporting system, is unassailable. It is also the most satisfactory method in practice and probably the most economical. Its most serious limitation is that the distance between columns or beams is usually large and therefore panels large in length or width are required. Furthermore, since points of attachment normally occur only at the ends of the panel, panels must be self-supporting between these points. For these reasons panels fixed between structural elements are in most cases of precast concrete, stone being unable to accept the stresses involved, even if the obstacle of size can be overcome.

A further advantage of precast panels is that projecting nibs can be cast on their backs to transfer the load of the panel to the frame (*support*). Simple metal accessories may then be used to hold the panel back (*restrain*). The Hide Place Development, Westminster, designed by Stillman and Eastwick-Field, contains an excellent example of this common method of fixing, 3, 4. The holes in the projecting nib through which the fixing bolts pass, are slotted to achieve some degree of lateral tolerance, whilst vertical adjustment is secured by means of lead washers inserted between the nib and the beam.

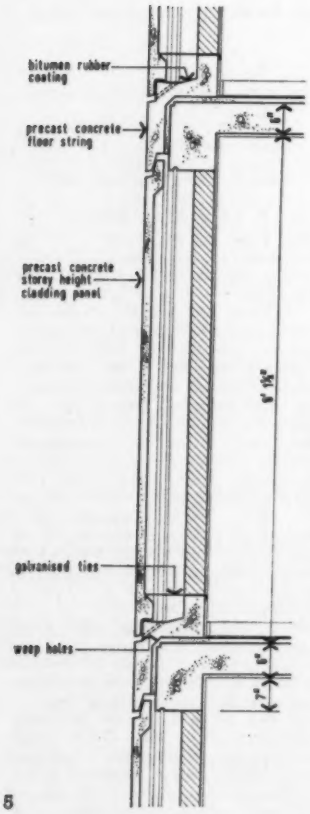
Metal fixing accessories used in the Hide Place flats are phosphor bronze (for straps and bolts) and lead (for bedding washers). Because corrosion of inaccessible fixing accessories would be disastrous, it is of supreme importance that they shall be incorrodible. Bronze, brass and copper are most frequently used, although stainless steel is an attractive, if expensive, alternative. Galvanized and 'rustproofed' accessories are not recommended, and the London Building Act in fact stipulates

SKILL



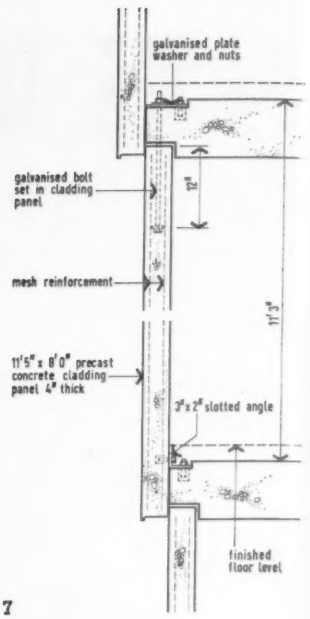
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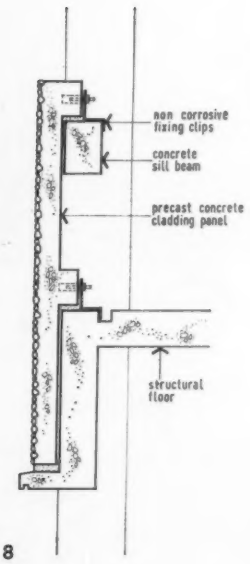


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6



7



8

3, detail section of flats at Hide Place, Westminster (architects, Stillman and Eastwick-Field).
4, lifting a cladding slab into position at the Hide Place flats.
5, detail section of LCC flats at Roehampton Lane.
6, slabs being lifted by crane and guided into position by one man at the LCC Roehampton Lane scheme.
7, detail section of Fifty-Fifty building, Miami, Florida (architects, Robert Law Weed and Associates).
8, attachment of spandrel panel using sill beam.

that fixing accessories shall be of 'stainless steel or non-ferrous metal (other than aluminium or zinc).' (Cl. 3.21 (2).)

The method of fixing shown in 3 follows the principle of tile hanging, the lower panels being fixed first. Joints are not pointed and the horizontal joint at the foot of each panel acts as a drainage slot for penetrating and condensed water. The 'lap' of the panels prevents penetration of wind-blown rain and should not be less than 8 in. The large (12 ft. by 10 ft. 3 in.) panels are hoisted into position by tower crane and all fixing is carried out from inside, 4.

Although the fixing principle is similar, 5 shows an interesting alternative method of attachment. Here the panels are hooked under precast strings spanning between columns at the top, whilst their lower edges rest against and are tied back to similar string units. Weep holes in the strings allow for the dispersal of water. As in the previous example, the fixing operation is extremely simple, the panels being lifted by crane and manoeuvred into position by one man without the necessity for external scaffolding, 6.

Provided the principle of 'support and restrain' is followed, the actual method of fixing is capable of wide variation. In 7, for example, the

[continued on page 429

continued from page 428]

panel is suspended from the floor projection at high level and tied back to the floor at its foot. Similarly, the insertion of a sill beam enables the 'hook-on' principle to be used for spandrel panels not spanning the full storey height, 8.

Horizontal panels attached to columns present slightly different problems. The panel in such cases acts as a beam and each panel must be independently attached to and supported by the columns in order to avoid cumulative build-up of stresses in the wall. The large profiled panels used in the Pressed Steel Company's Factory at Swindon, 9, are supported by nibs cast on the precast structural columns, whilst at the Camden School for Girls, 10, support and restraint are combined into a single attachment device: a metal flange fixed to each end of the panel for making a bolted connection to the column. Perhaps the simplest device of this nature is the concrete peg fixing used in the Intergrid system, 11.

If a secondary, non-structural supporting grid is introduced, far greater flexibility in panel size and design is possible, at the cost, however, of economy. The most obvious type of secondary supporting grid is the sheath wall (curtain wall) usually associated with light cladding, but, provided the framing system is strong enough, there is no reason why heavy panels of stone or concrete should not be fixed in the same way as light panels. Castrol House's white Sicilian marble panels are fixed to the aluminium framing with simple rectangular beads, 12. Apart from its flexibility, this method (which is extensively used in America for attaching heavy panels) ensures that all panel movements are contained within a small area and excessive stress build-up is therefore impossible. It is also one of the few fixing methods which allows stone panels to be fixed to a frame rather than to a wall.

Panels used as applied finish

The technique of using natural or precast panels as an applied facing to brickwork, blockwork or in-situ concrete may almost be regarded as traditional, but the principles already outlined still apply. Its main advantage is the opportunity to use panels of small surface area and because of this it is the commonest method of fixing natural stone panels.

Support is given to the panels in one of four ways, 13:

(*a*) on structural projections, such as floor slabs or beams,

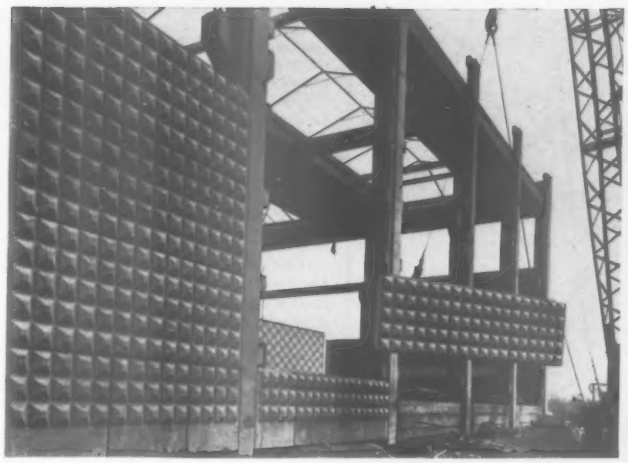
(*b*) by nibs projecting from the back of the panels,

(*c*) by thicker corbel panels built into the backing wall,

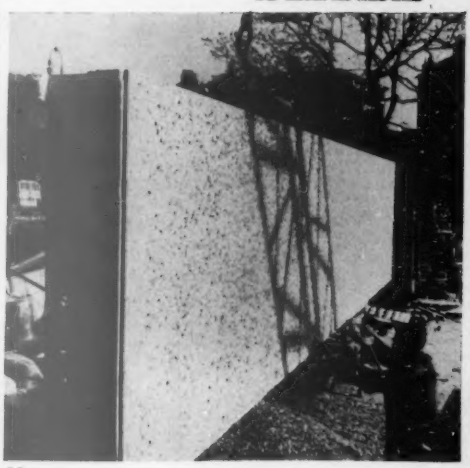
(*d*) by metal or slate corbels projecting from the backing wall and fitting into slots in the back of the panel.

It is not usually necessary for direct support to be given to every panel course. Provided each panel is adequately restrained, supporting courses every six to eight feet are all that is required, intermediate courses bearing directly on the course below.

The metal accessories which complete the fixing of applied panels have two important functions. They *restrain* or hold back the individual panels and they *align* adjacent panels to provide a visually plane surface and to ensure that no eccentric loads are transferred to lower panels. As already explained, accessories must be incorrodible, bronze, brass, copper and stainless steel being

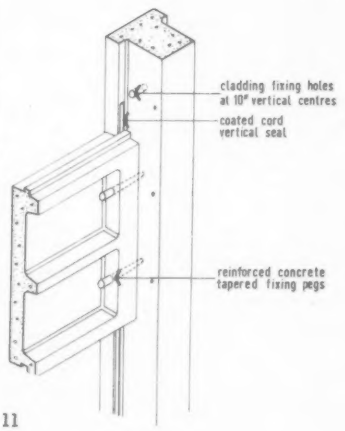


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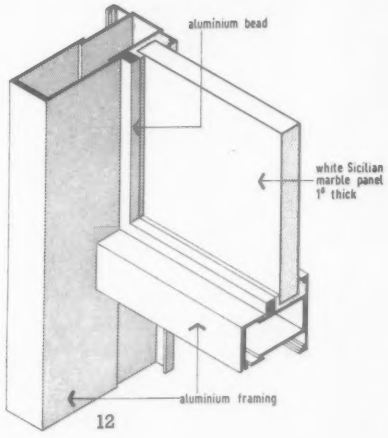


10

9, *swinging a profiled wall panel into position at the Pressed Steel Company's factory at Swindon.*
10, *facing panels at the Camden School for Girls showing steel flange for making a bolted connection to the columns.*

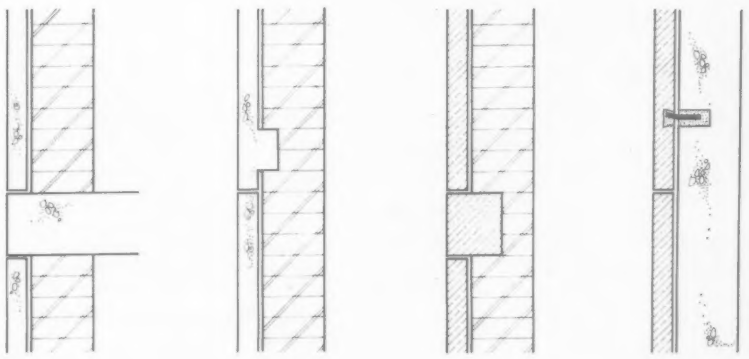


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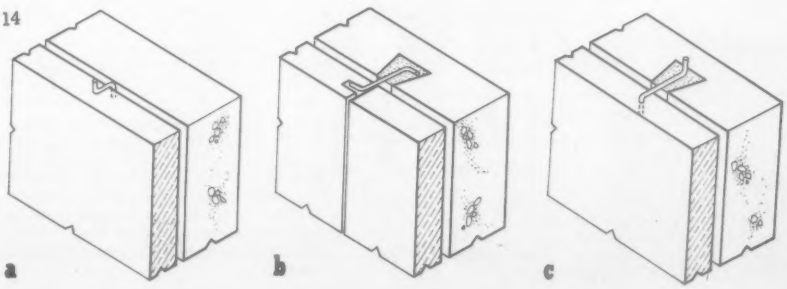
12

11, *'Intergrid' method of panel attachment.*
12, *heavy cladding panel in sheath wall frame (architects, Gollins, Melvin, Ward and Partners).*



13 a b c d

13, *supporting the applied panel: a, on the structure; b, by cast nibs; c, on corbel courses; d, on metal or slate corbels. Restraining accessories are not shown.*



a b c

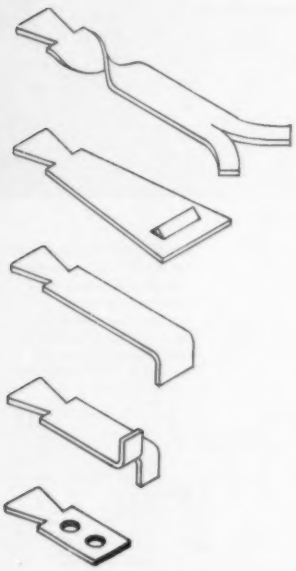
14, *a, S-hook; b, side cramp; c, top cramp.*



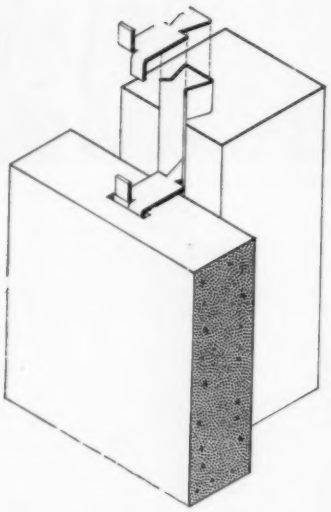
15, *copper wire hook.*

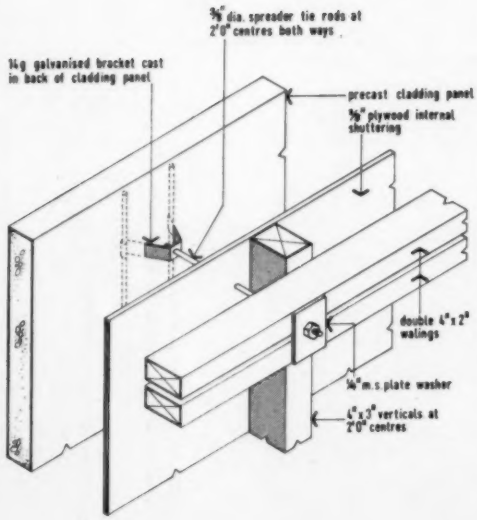


16, *nibbed anchor.*

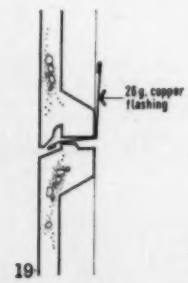


17, *dovetail joints.*





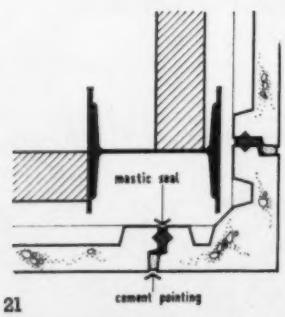
18, *a method of using slabs as permanent formwork commonly adopted in America.*



19



20



21

19, *flashing at horizontal joint (architects, Ministry of Education).*
20, *protection of mastic.*
21, *protection of mastic (architects, Sir John Burnet, Tait and Partners).*

usual. Rigid metal accessories should never be cast into the back of the panel, as they will certainly be damaged during handling with possible spalling of the concrete.

The commonest traditional accessories are side and top cramps for restraint and S-hooks for alignment, 14. It is usual for all holes in panels to be cut or drilled before delivery to the site and cramps are fixed into dovetailed mortice holes cut in the backing wall with a 1 : 1 cement mortar.

The need for security in fixings to the backing wall cannot be overemphasized, as upon these fixings depends the stability of the entire facing. Accurately cut *dovetailed* holes are essential and proper pointing of the accessories calls for workmanship of a high order. Copper wire hooks, 15, are frequently used to provide both restraint and alignment when fixing to brickwork and, although the hooks themselves are dovetailed, they are intended primarily for inserting into non-dovetailed joints in the wall. Inexpert fitting of these hooks may cause most of the pointing mortar to be pushed away as they are inserted into the joint, and unless the joint is repointed after pushing the hooks home, a secure fixing will not be made. In every case hooks of this type should have at least a 4 in. *seating* in the wall. Nibbed anchors, 16, are much to be preferred.

The cramps and hooks described provide only for relatively small adjustment within the mortices of the backing wall. Provided these mortices are accurately cut and positioned, this need not be a disadvantage. When the backing wall is of brickwork there is, indeed, no other way in which greater adjustment can be attained. If, on the other hand, the backing wall is of concrete, dovetailed metal slots cast in the wall, together with a variety of sliding dovetailed anchors, 17, are able to provide, in one direction at least, a high degree of flexibility.

It is usual practice in this country to leave a cavity about ½ in. wide between the facing panels and the backing wall so that cramps and anchors can be adjusted to ensure a plane and plumb wall. Continental practice favours grouting up this cavity with weak concrete, but experience has shown that it is not always possible to prevent the formation of air pockets which collect moisture and stain both interior and exterior surfaces of the wall. An unfilled cavity also allows the dispersal by gravity or evaporation of any water penetrating the joints between panels.

Panels used as permanent shuttering

Panels used as permanent formwork to an in-situ wall are a special case. Strictly speaking, it is doubtful whether they are cladding panels at all, since the aim is to achieve a homogeneous structural wall. However, their manufacture and appearance are similar to those of applied panels and a few notes have therefore been included.

The usual method of ensuring an adequate bond to the cast backing is to leave metal loops, wires or hooks projecting from the back of the panel which in addition should have a rough or grooved surface. The metal projections are either simply left protruding into the in-situ wall or are fixed around its main reinforcement. If the aim of homogeneity is by these means achieved, there should be no problems of differential movement.

It should be remembered that panels used as permanent formwork are subject during erection to far greater lateral stresses than panels used in other ways. J. Gilchrist Wilson, in his extremely valuable booklet *Concrete Facing Slabs*, has pointed out that 'the pressure exerted by concrete compacted by vibration is equivalent to the hydrostatic pressure of a liquid weighing in the region of 150 lb. per cu. ft. and if adequate support is not provided, particularly at the centres of the slabs, they may be broken or forced out of line.' He describes in detail a system of erection extensively used in America by which external support for the panels during erection may be omitted and formwork costs consequently reduced. Straps projecting from the backs of the panels are connected to adjustable tie bolts at 2 ft. centres which are braced against the internal shuttering, 18. By this means, no external formwork is required, the panels are fully restrained during placing of the concrete, and all construction can be carried out from inside the building.

It is important that the exposed surface of the panels should not become stained during the placing of the concrete backing, either by careless placing or by leakage through the joints between panels of the fine material used in the in-situ backing. Apart from care in placing, this usually means sealing the joint before casting the concrete backing by buttering up on the inside with mortar, or by using a joint sealing strip of yarn, paper or felt.

Jointing

The detailing of joints is one of the occupational hazards of architecture; it is a most complex subject and the pitfalls are many. In an earlier article* I dealt rather more fully with jointing problems than space here permits, and the following notes are intended mainly as a supplement to my earlier observations.

All joints must be flexible enough to allow for movement in components and also exclude moisture. The amount of movement and therefore the size of joint is directly related to the surface area of panel, and small panels, such as those of natural stone applied traditionally to a continuous backing, will require only a relatively small joint. In such cases a ½ in. joint pointed with a 1 cement : 2½ lime : 3½ stone dust mortar has been found satisfactory.

Larger panels require a joint normally too wide to be pointed with such an inelastic material. The advantages of a dry horizontal joint, 3, have been described. Care should be taken to exclude wind-blown rain and to evacuate moisture by means of flashings, 19.

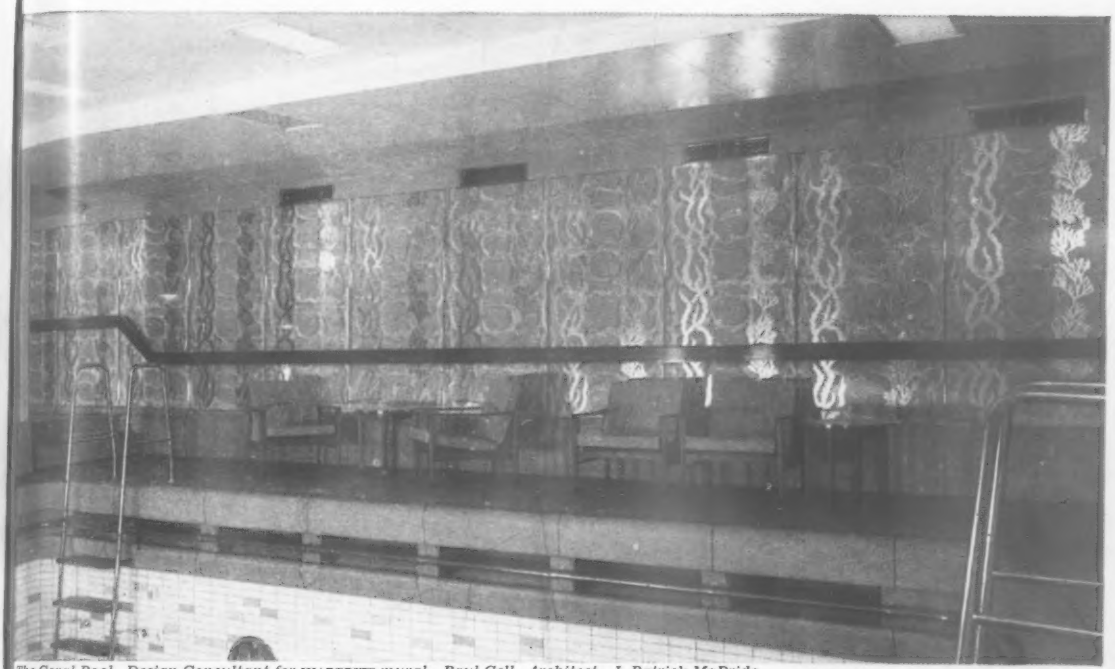
If oil-based mastic is used as a sealant, it should be remembered that it has a limited life and resealing may well become necessary during the life of the building. Its life will be extended by reducing the area exposed to sunlight and weather, 20, or by pointing with a weak (1 cement : 3 lime : 12 sand) mortar, 21. At the same time, sufficient mastic should be used to enable the joint to function properly. The ability to accept constant deformation can only be guaranteed by providing sufficient depth—½ in. below the surface skin should be regarded as a minimum and to compensate for the shortcomings of workmanship it may be wise to increase this to ½ in. The

[continued on page 432

*"The Joint,' *Architects' Journal*, 28 April 1960.

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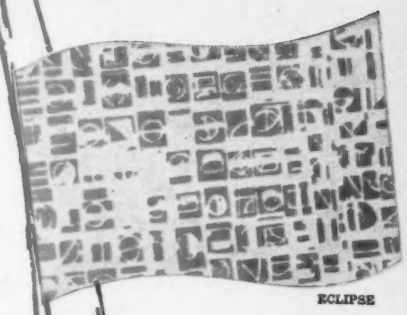


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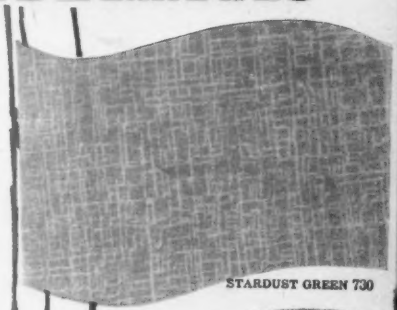
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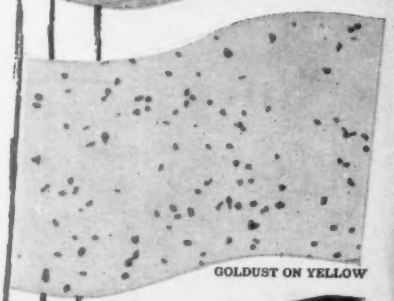
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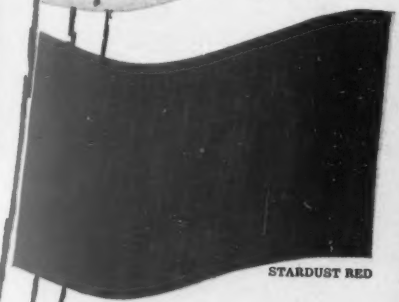
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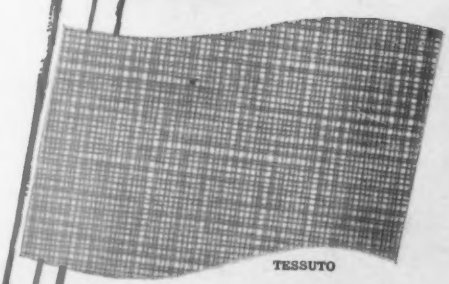
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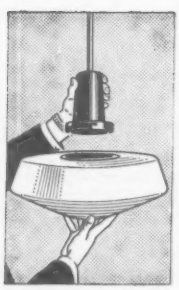
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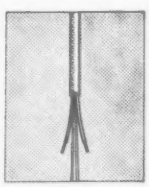
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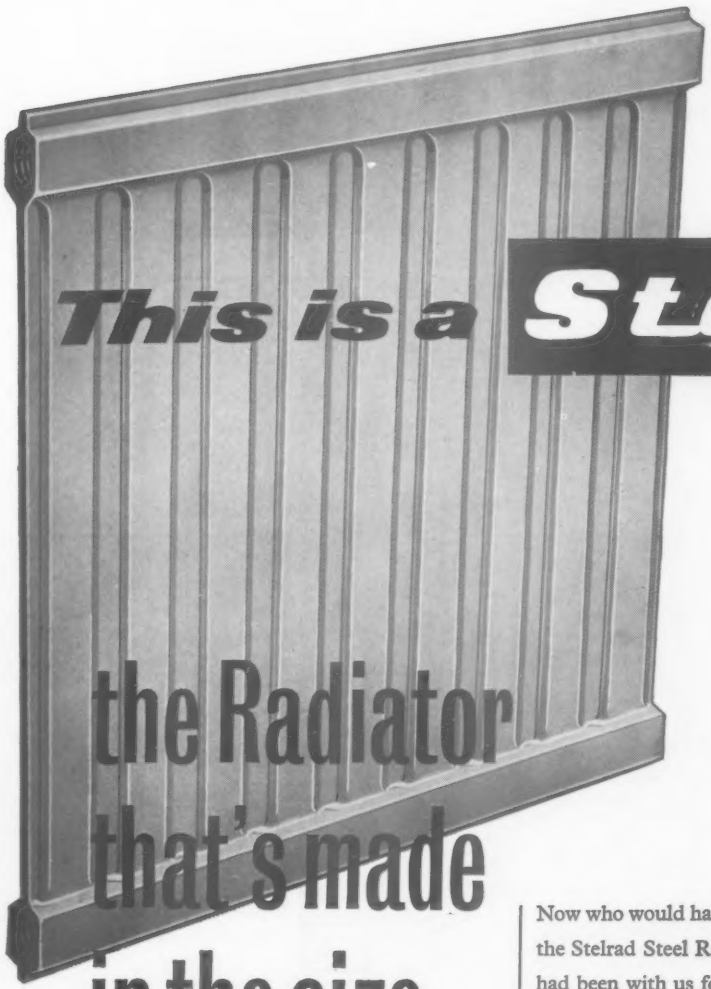
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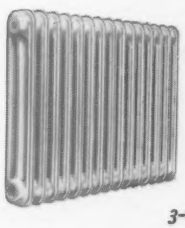
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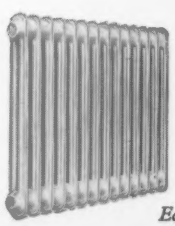


Angle-Wall



3-Column

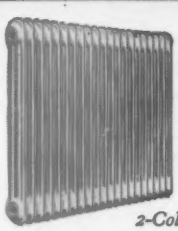
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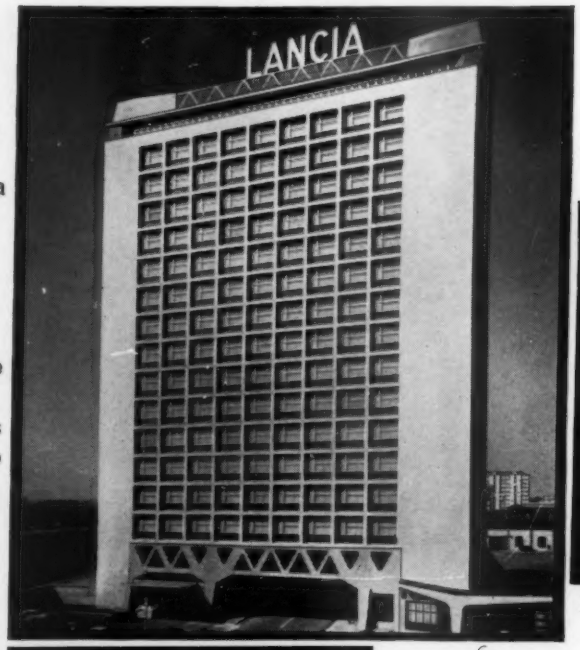
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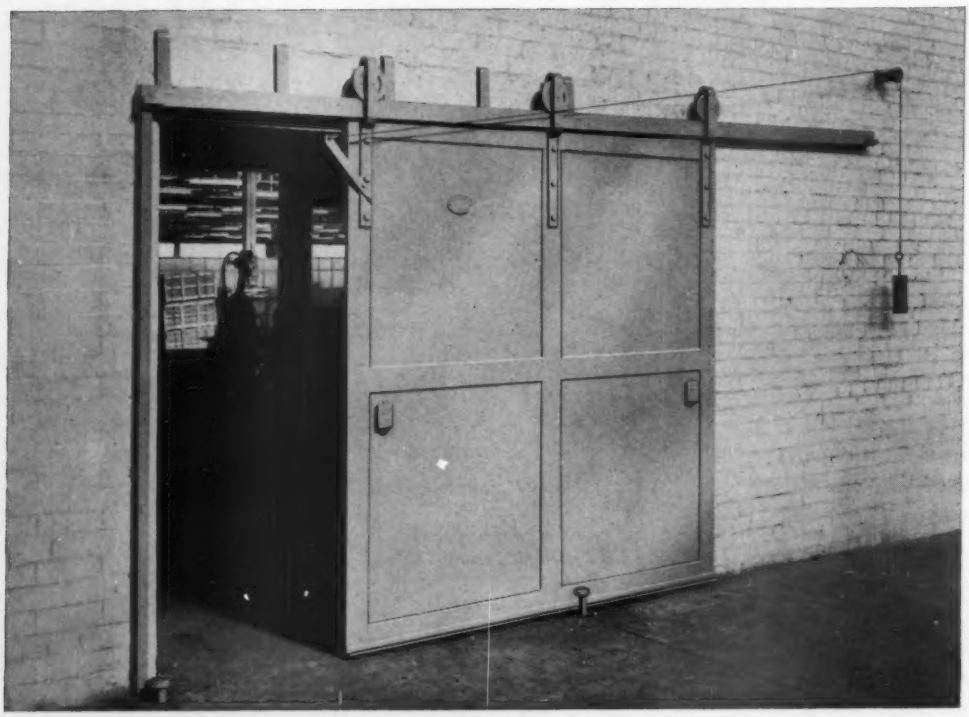
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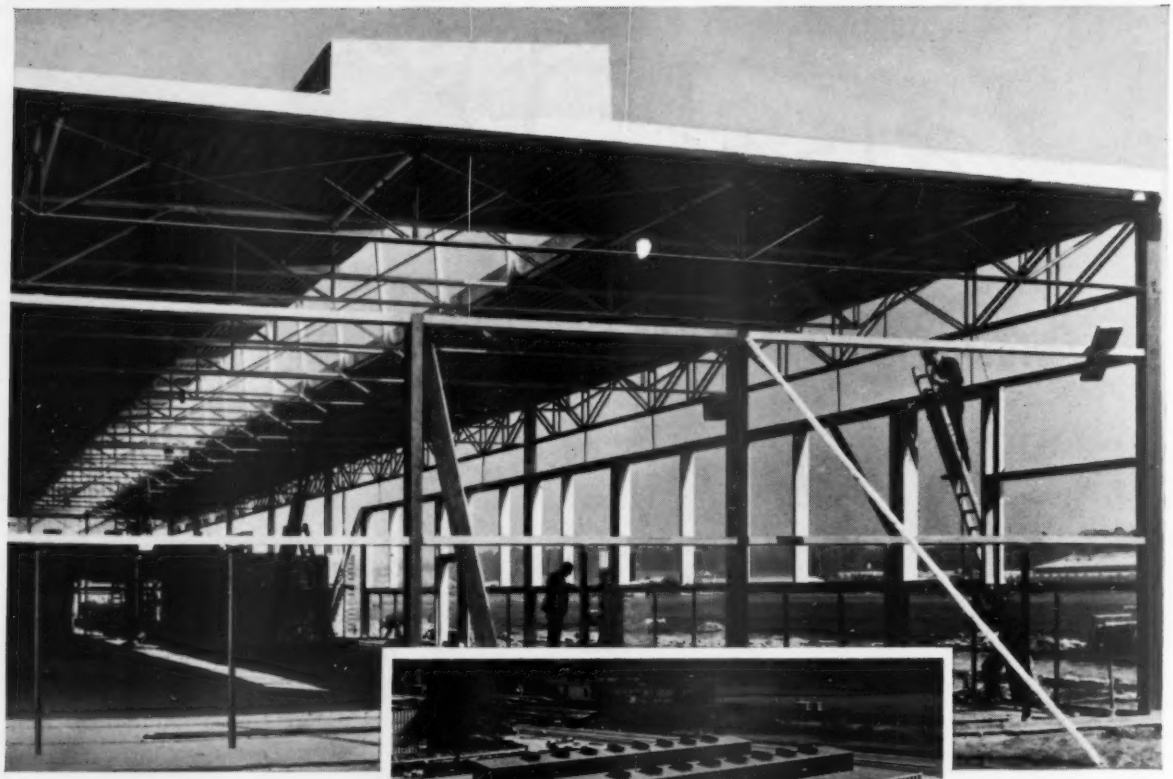
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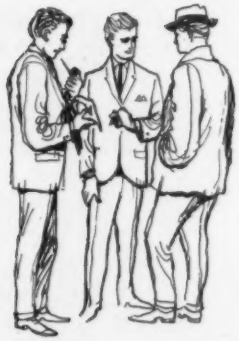
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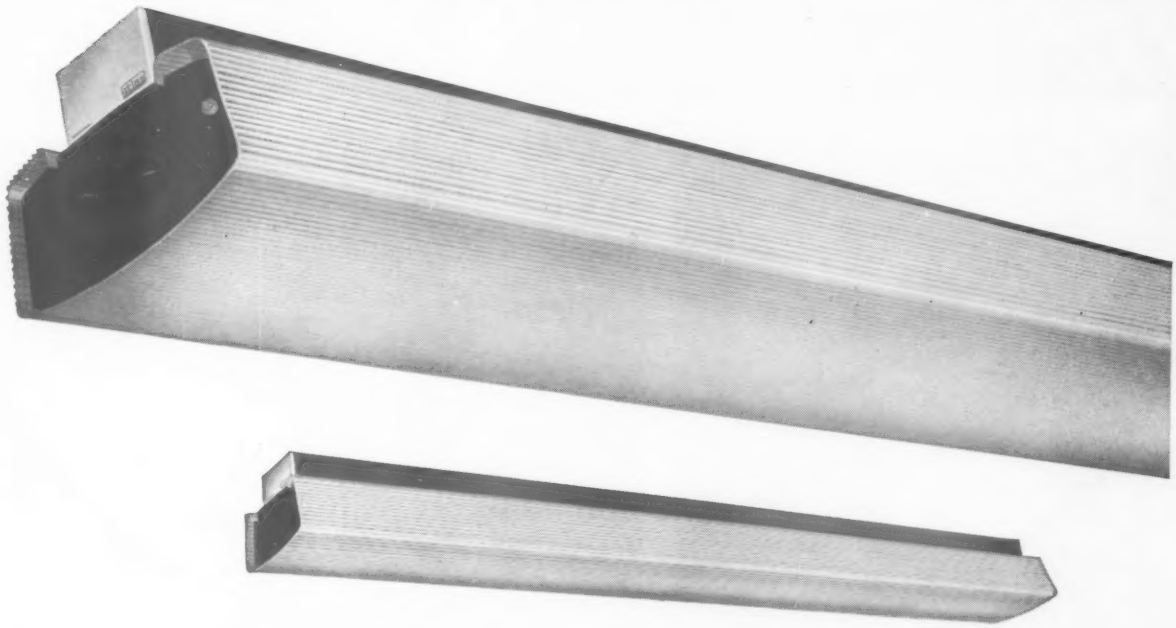
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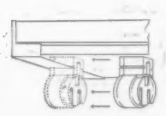
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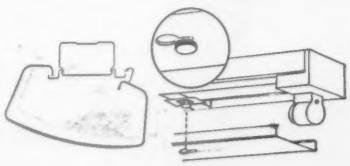


The AAB series diffusers illustrated, accommodating 1 or 2 x 80w. tubes, present economic, but very attractive, commercial lighting fittings. Extruded with a bold reeded pattern on the outside, the opal 'Diakon' diffuser has clip-in plastic moulded end plates in blue or white and is easy to clean. Price with QS gear for the twin version is £17.2.5 tax paid.

Incorporated in the spine are many features which will reduce installation and maintenance costs. These include: new, spring loaded lampholder, starter switches replaceable without dismantling, welded screw studs, single component spine, pre-wired, automatic continuous run alignment; drip and dust proof, closed back; 'Miracryl' finish; and others illustrated.



Improved lampholders, need no fixing, no screws



Fast, positive fixing of attachments

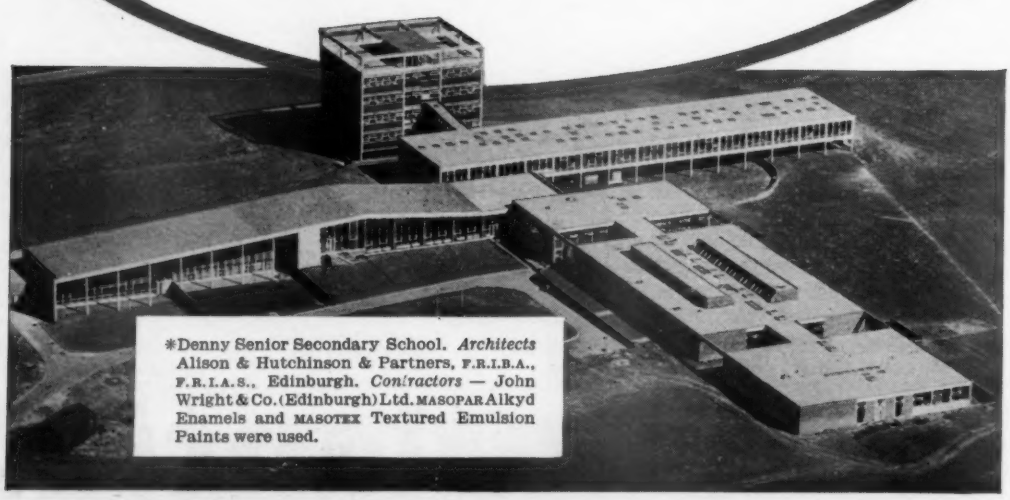
atlas atlantic 2



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*Denny Senior Secondary School. *Architects* Alison & Hutchinson & Partners, F.R.I.B.A., F.R.I.A.S., Edinburgh. *Contractors* — John Wright & Co. (Edinburgh) Ltd. MASOPAR Alkyd Enamels and MASOTEX Textured Emulsion Paints were used.

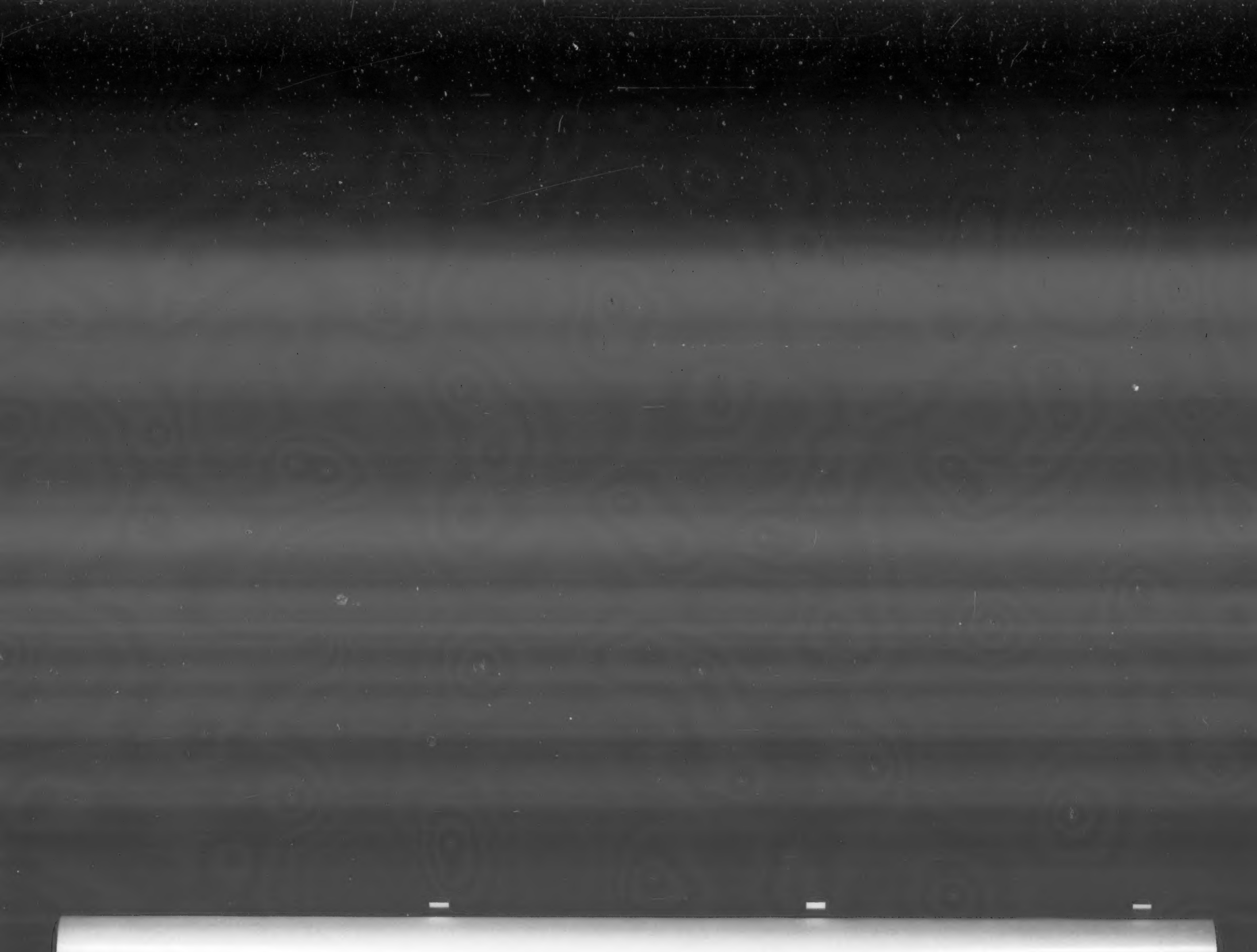
joseph mason paints

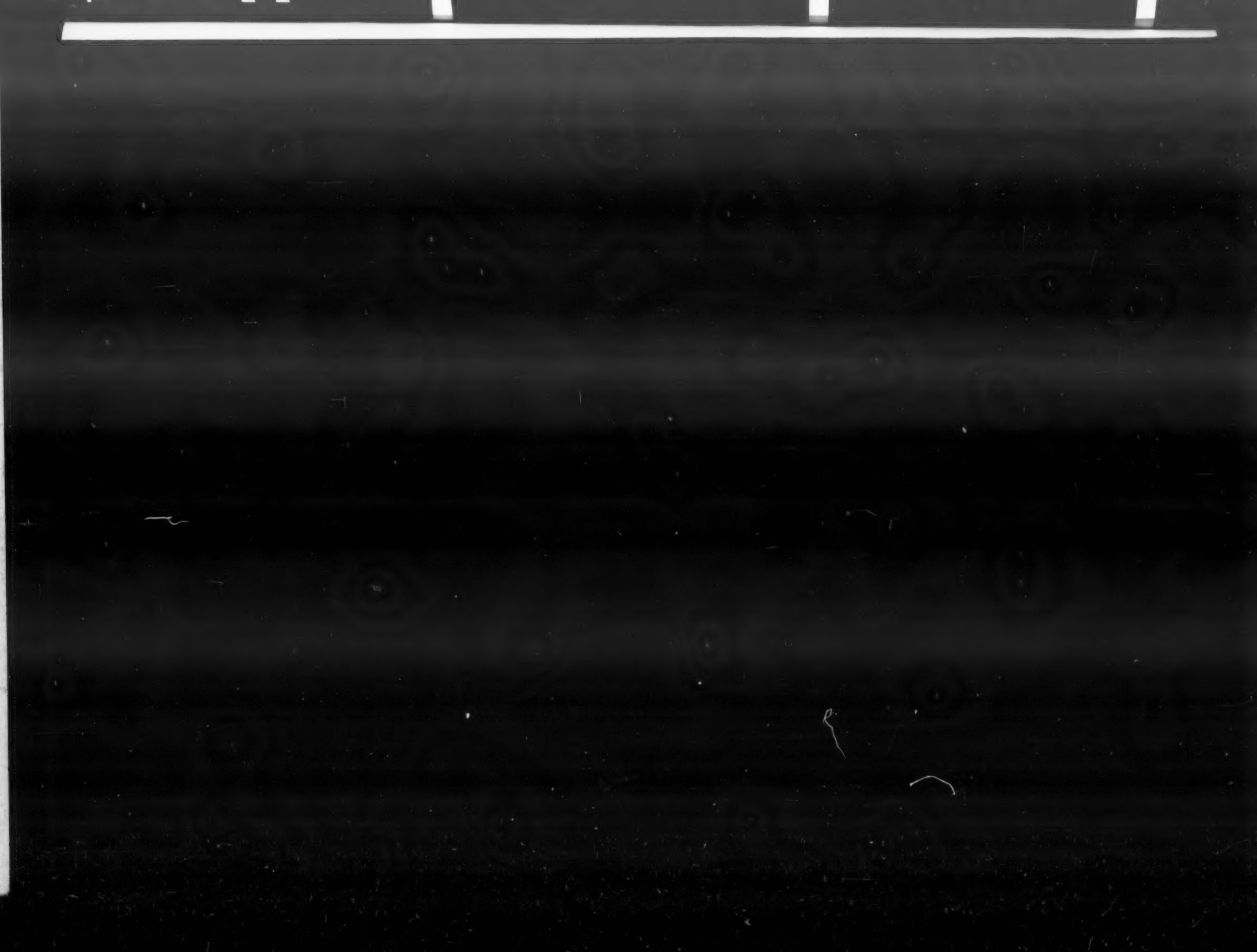
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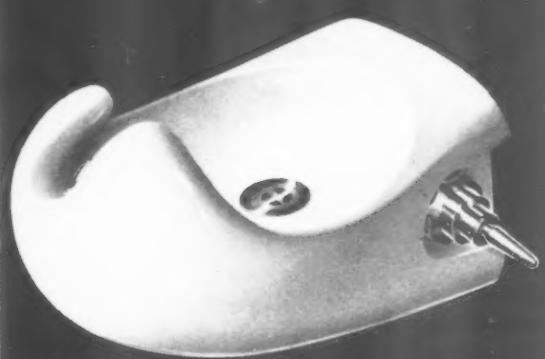
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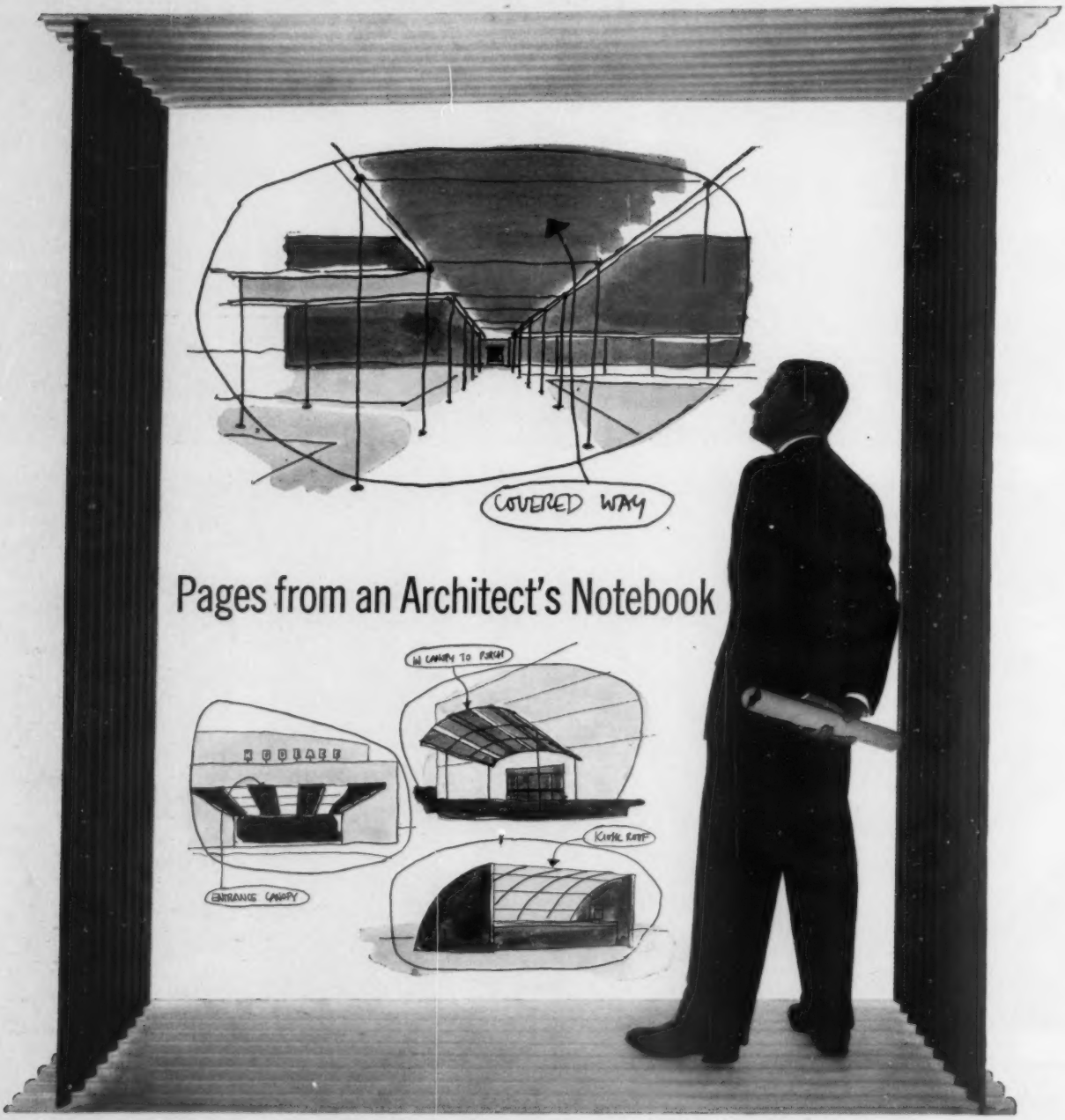








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a problem in roofing

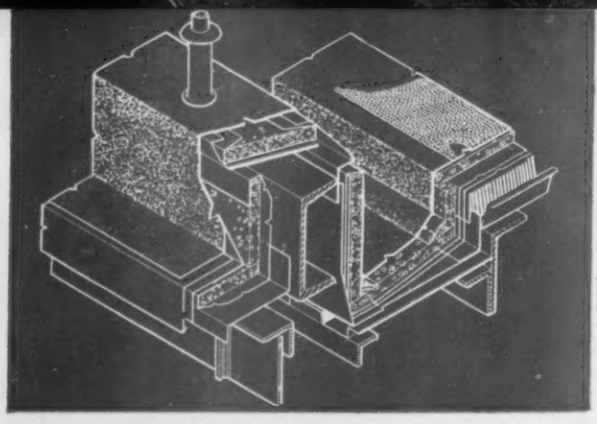
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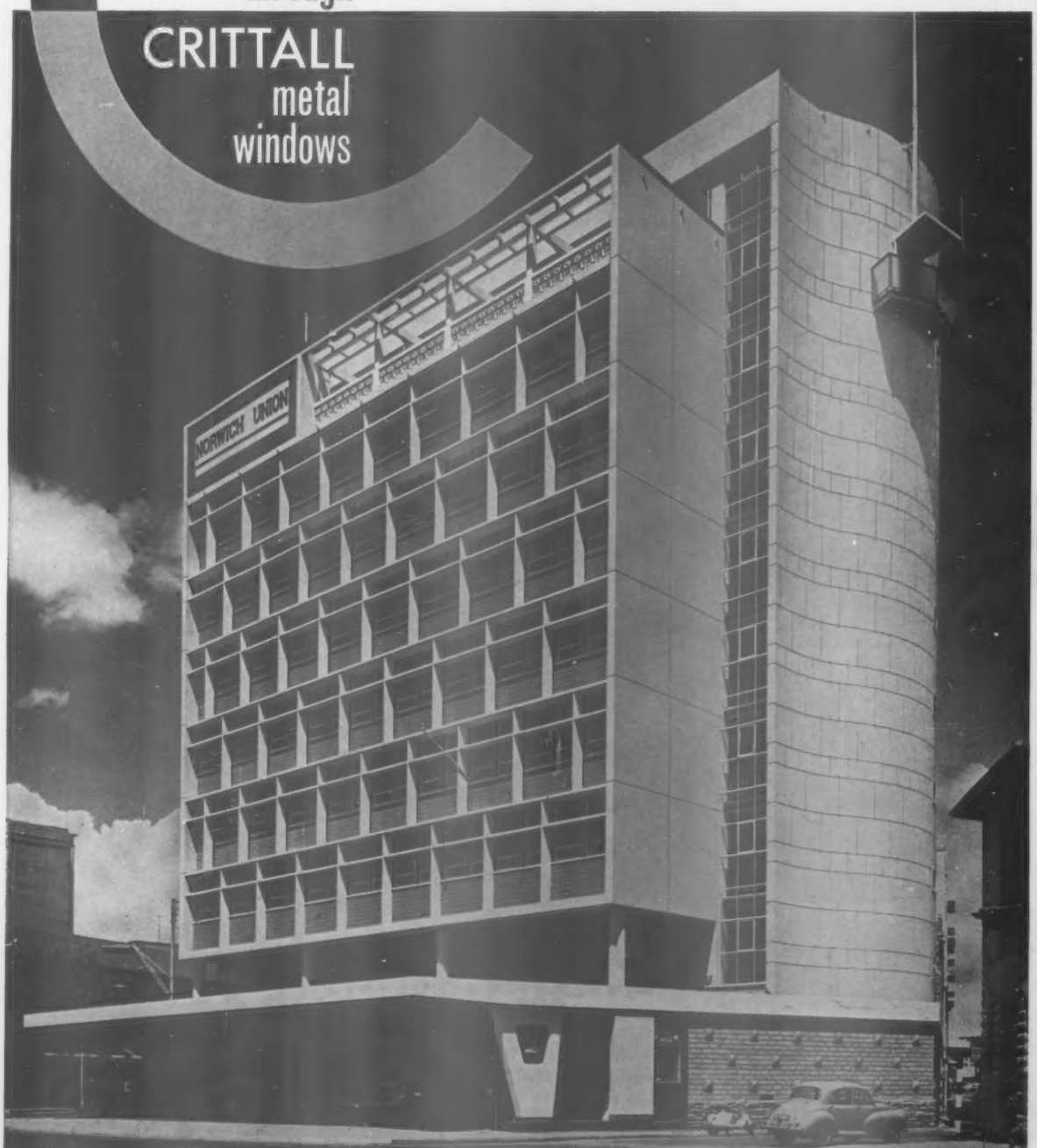
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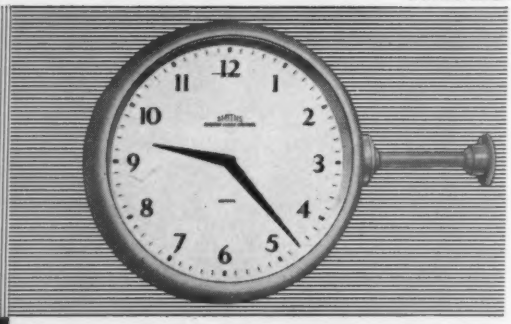


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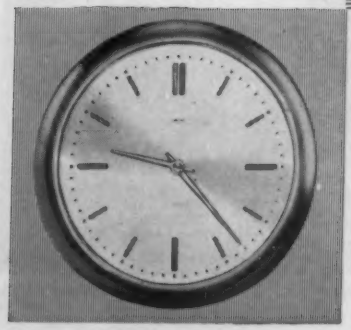


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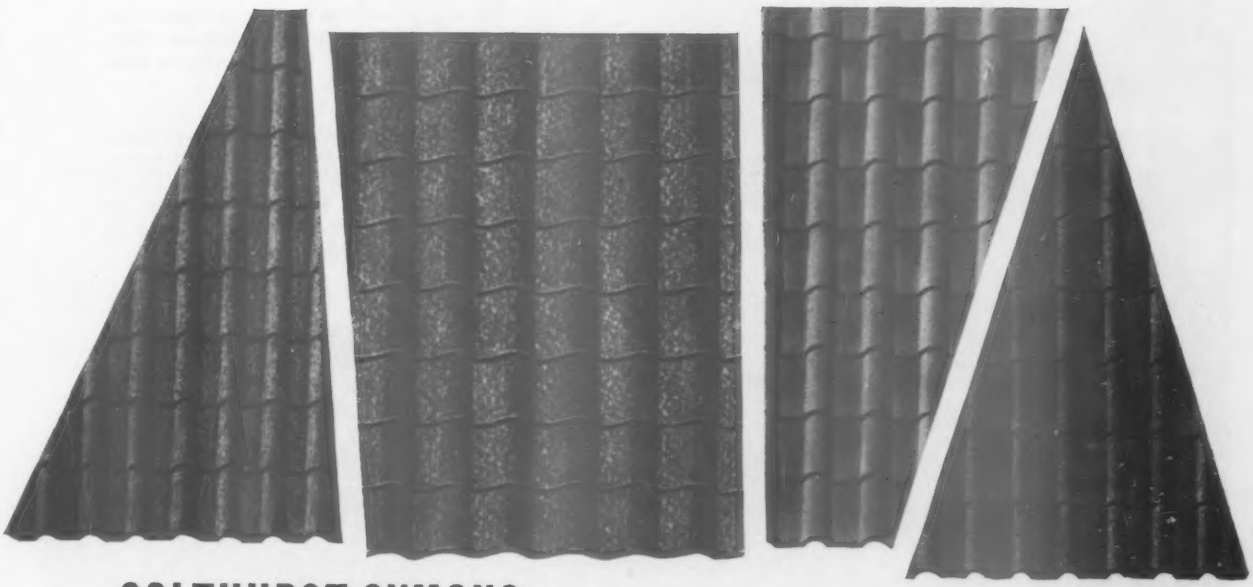
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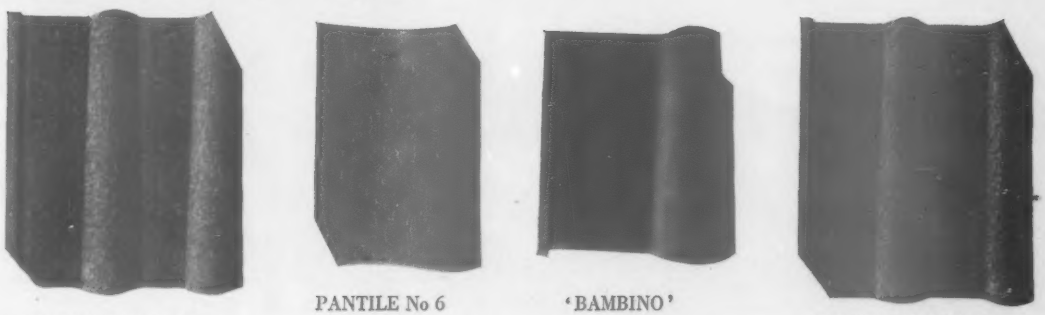
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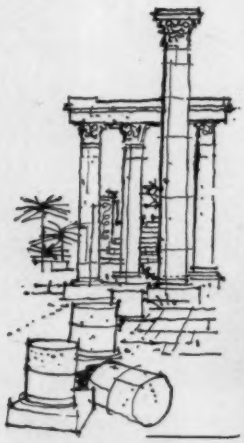
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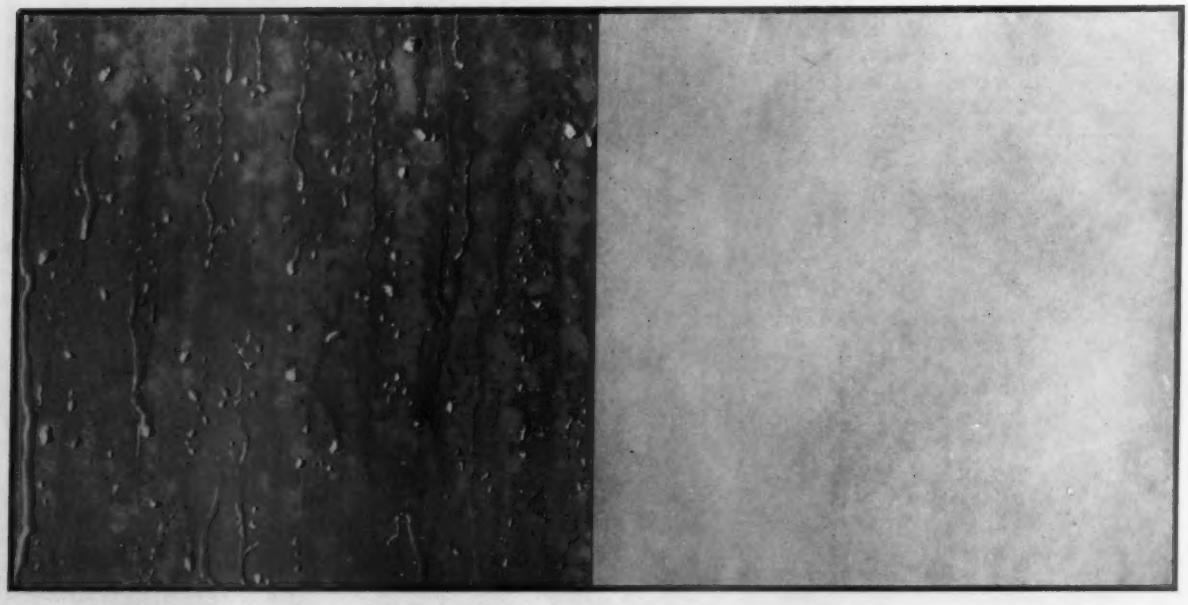
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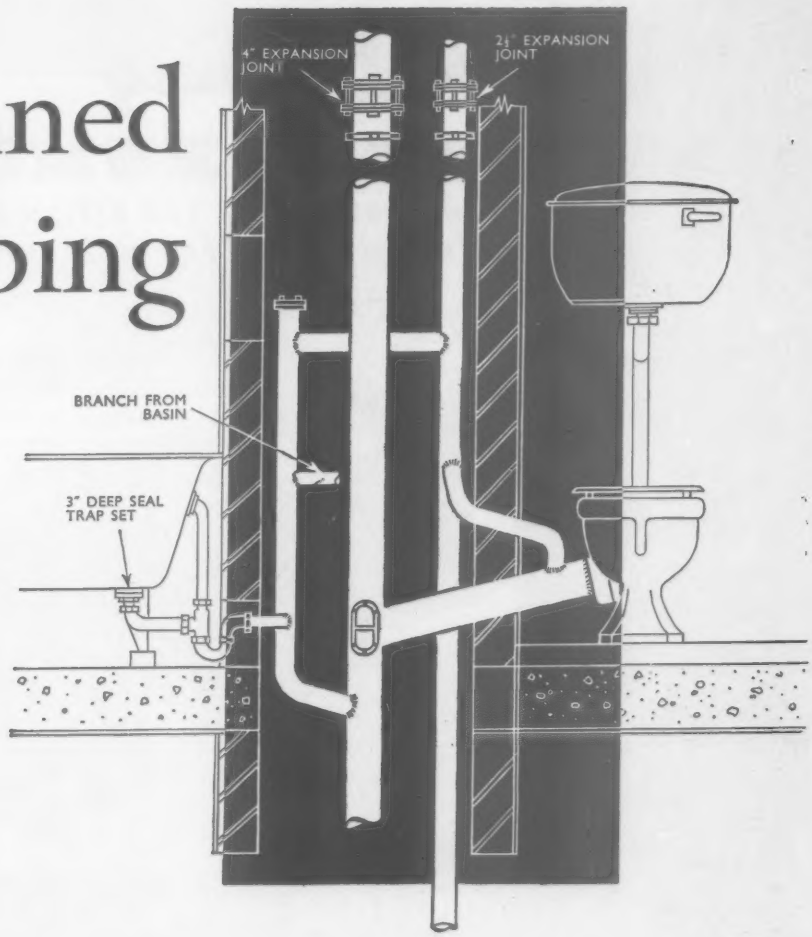
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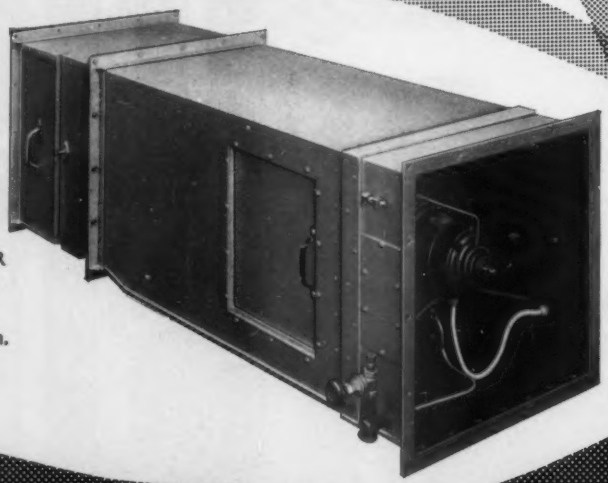
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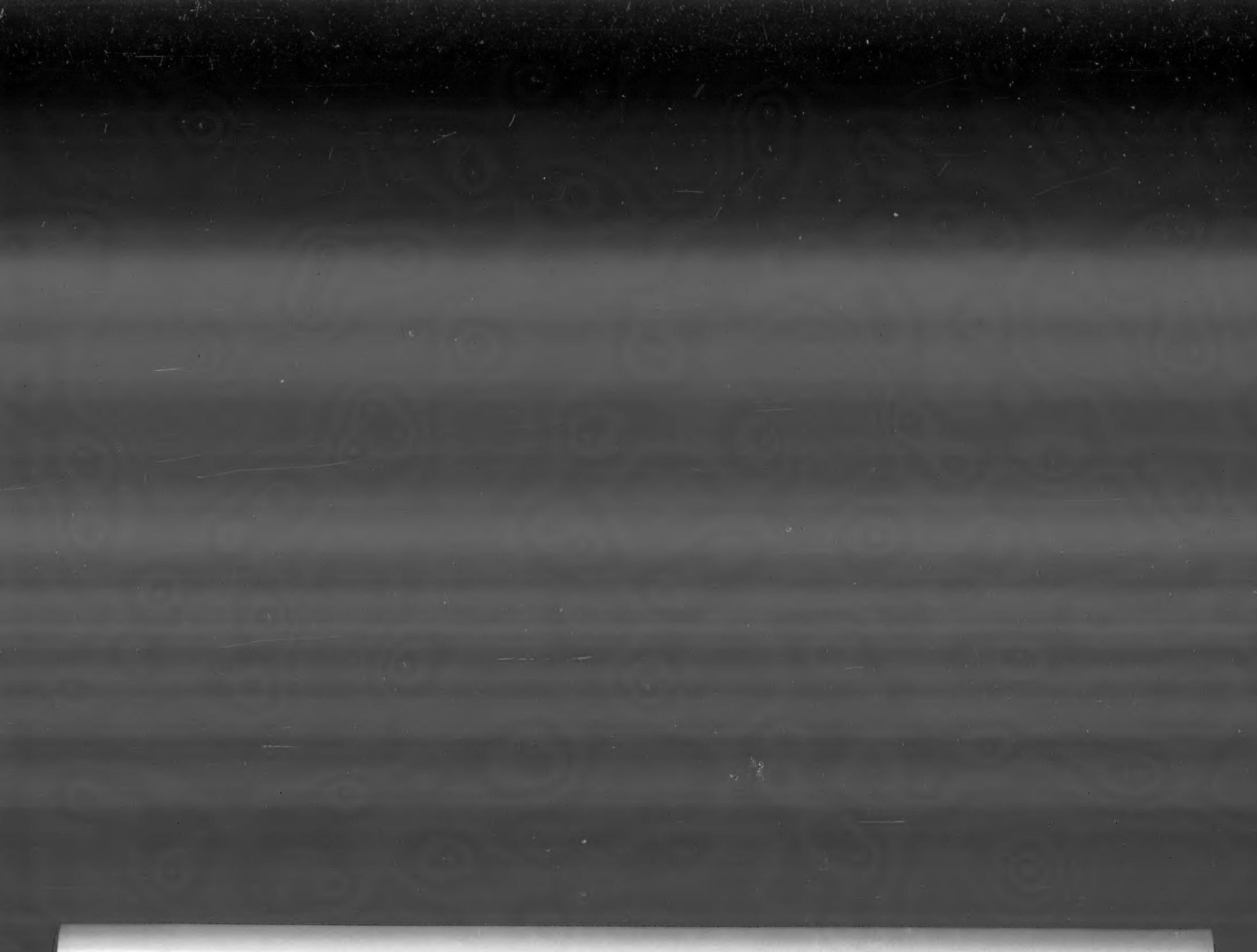
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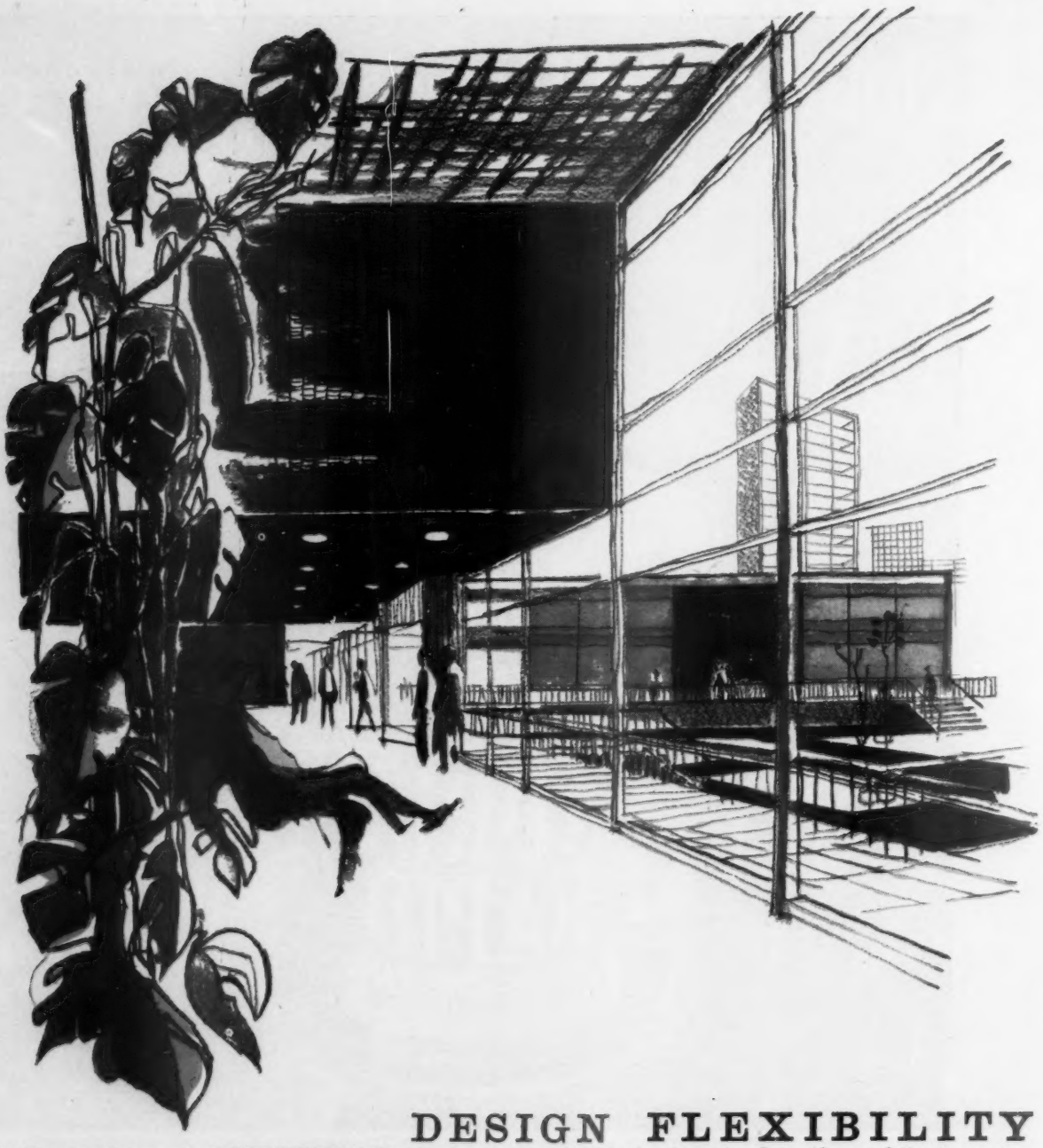
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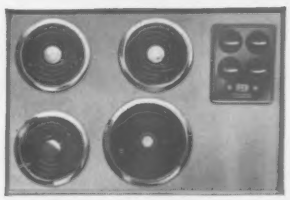
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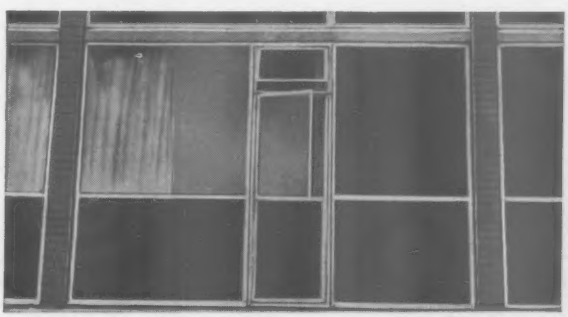
WILLIAMS & WILLIAMS

at Europe's largest air hotel



This view of the bedroom block and escape staircase illustrates the contrasting blue and white colour scheme chosen for Skyway. The blue Plyglass infilling panels are backed by Thermalite insulation blocks. With quarter inch glass throughout the building, this effectively reduces airport noise to a minimum.

With years of experience in catering for the traveller, Skyway Hotels Ltd. had no doubt about the way they wanted to build at London Airport. A room for the night or a few hours, breakfast at mid-day, or a banquet at short notice for a party delayed by fog—these are a few of the things today's air passengers may need. And, of course, the right atmosphere must be part of the service. Williams & Williams purpose made steel windows were specified throughout this contract. Amongst its requirements the brief called for maximum sound insulation and a creative use of exterior colour. In addition, the installation had to keep pace with an eight months building schedule. Skyway was handed over three weeks ahead of time—and has proved to be just what the traveller wanted. A new bedroom wing, commissioned soon after the hotel opened, has just been completed. Once again Williams & Williams purpose-made windows were used throughout.



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Architects: Fitzroy Robinson & Partners.
Contractors: Bernard Sunley & Sons Ltd.



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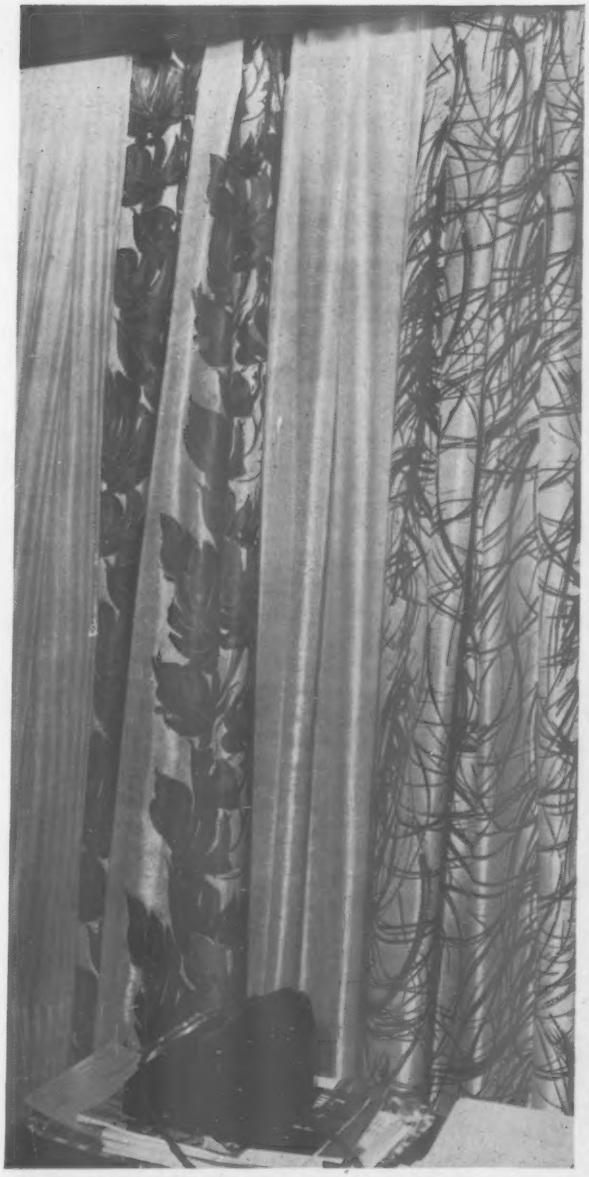


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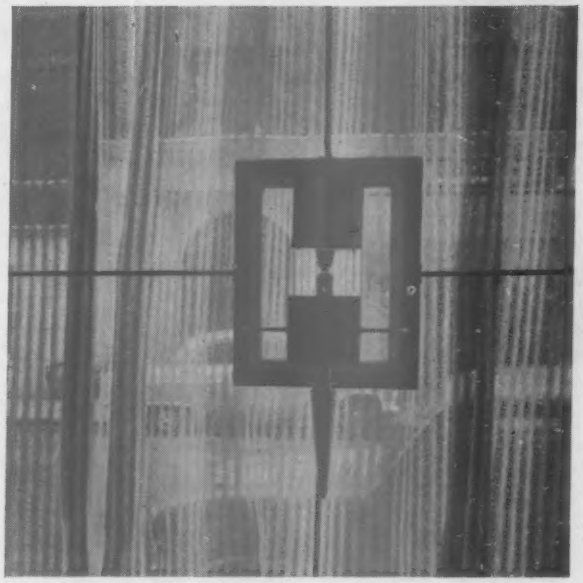
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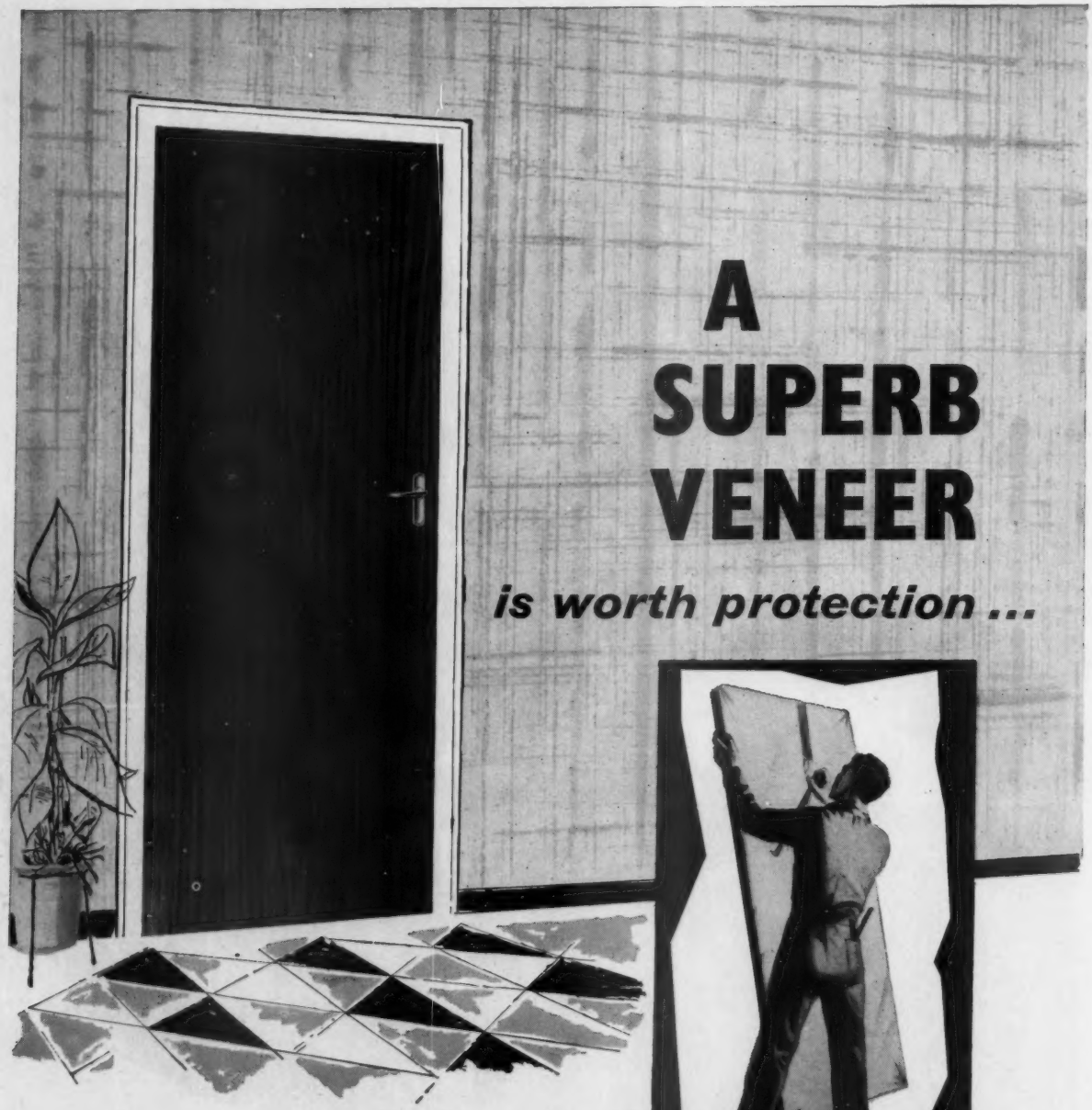


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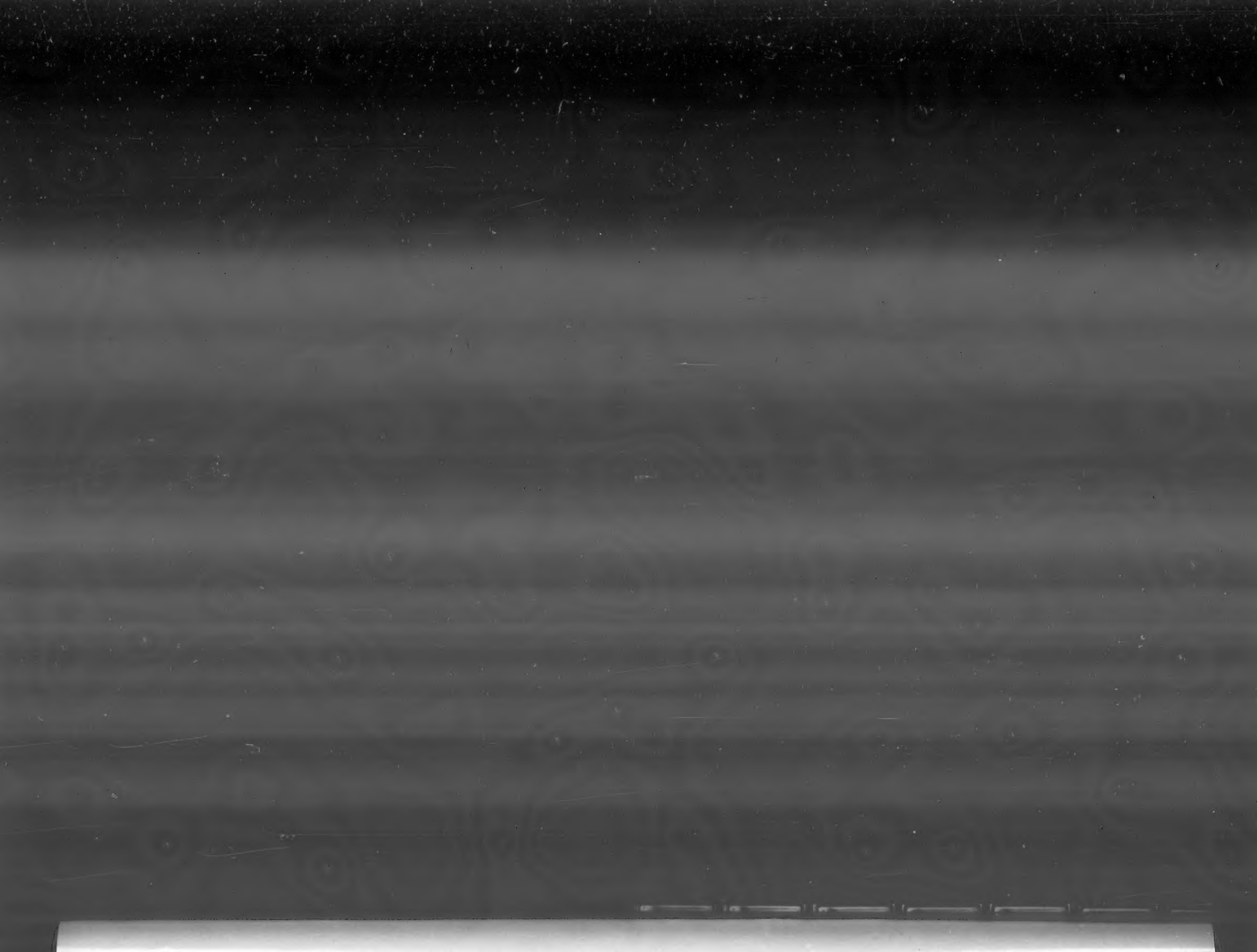
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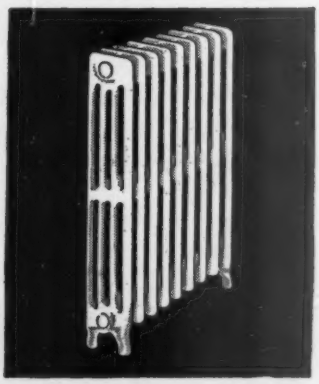
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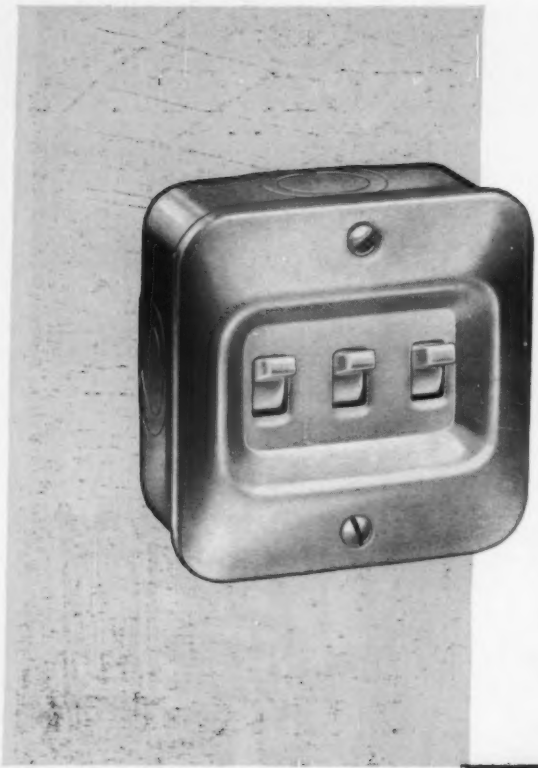
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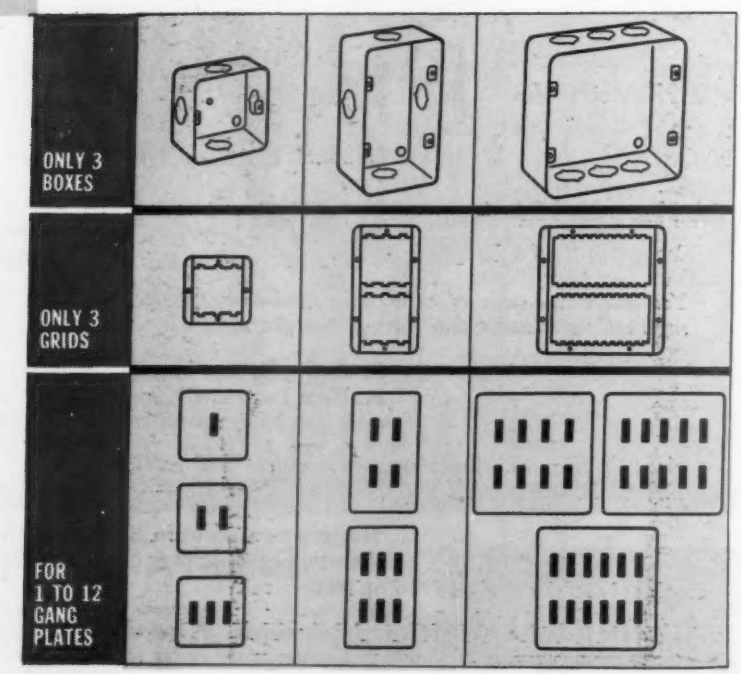
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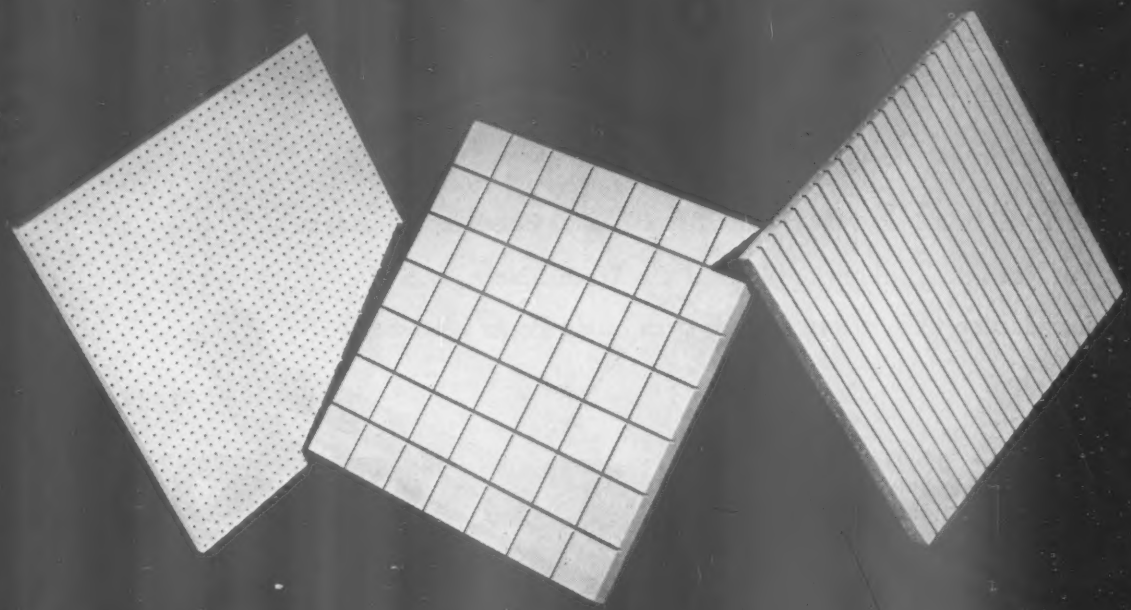


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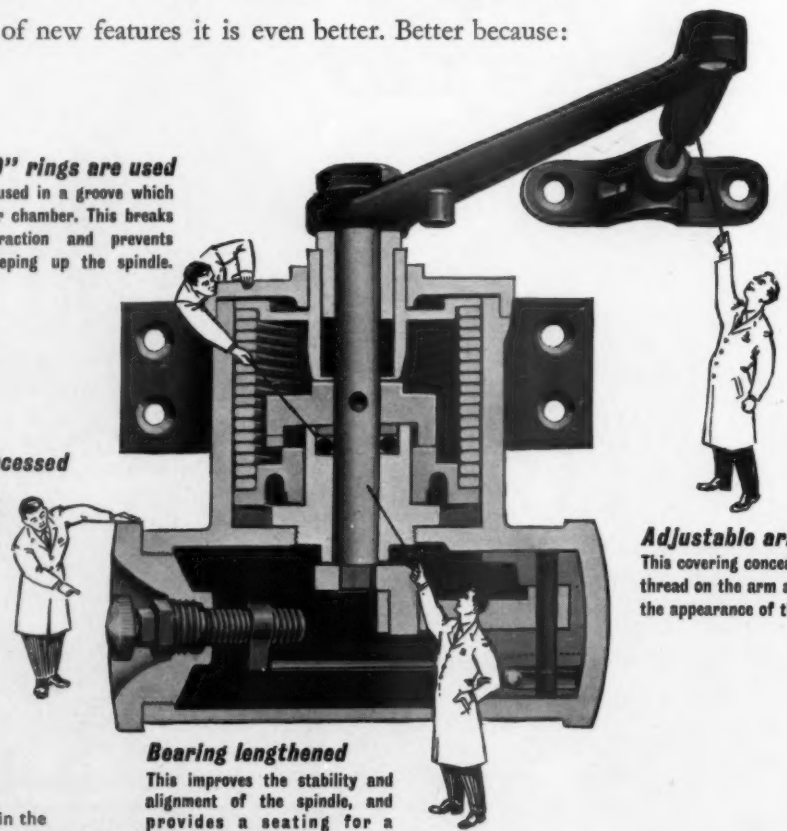
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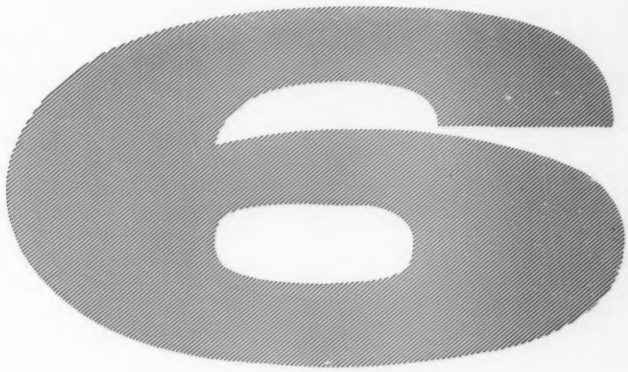
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Colour names

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It is of interest then to examine the names given to colours by the English language. These are few — blue, green, yellow, red and purple. Purple was the name given to Imperial Crimson and is related to status rather than colour. The remaining four words dig deep into the history of the language and have been used for centuries as basic words to describe the sensations evoked by differing fluxes received by the eye. These four colours are also those showing little or no change in hue with change in luminance—they remain fixed. The nature of the sensation in each case is distinct ; red is not yellowish, greenish or bluish, and so on. By physical methods of measurement these colour names can be fixed in wavebands of the visible spectrum. They are the names given to the basic hues which, together with black and white, can create the whole of the colour range that we know today. They are also the basic fluxes that give us colour vision; three parameters—yellow-blue, red-green, and light-dark.

All other colour names (and they are now legion) are derived words or names of association. Aquamarine (a blue-green) is the name of a blue-green gem. Jasmine (a yellow) is the name of a shrub with a yellow flower.

Although colour names are useful in preparing a decorative scheme, it is advisable to use a subjective system of nomenclature such as the Munsell or Adams system, or some physical criteria such as selective reflective power, in determining colours suitable for functional decoration. Associative colour names can be a trap to the unwary since the association may not be a true one.

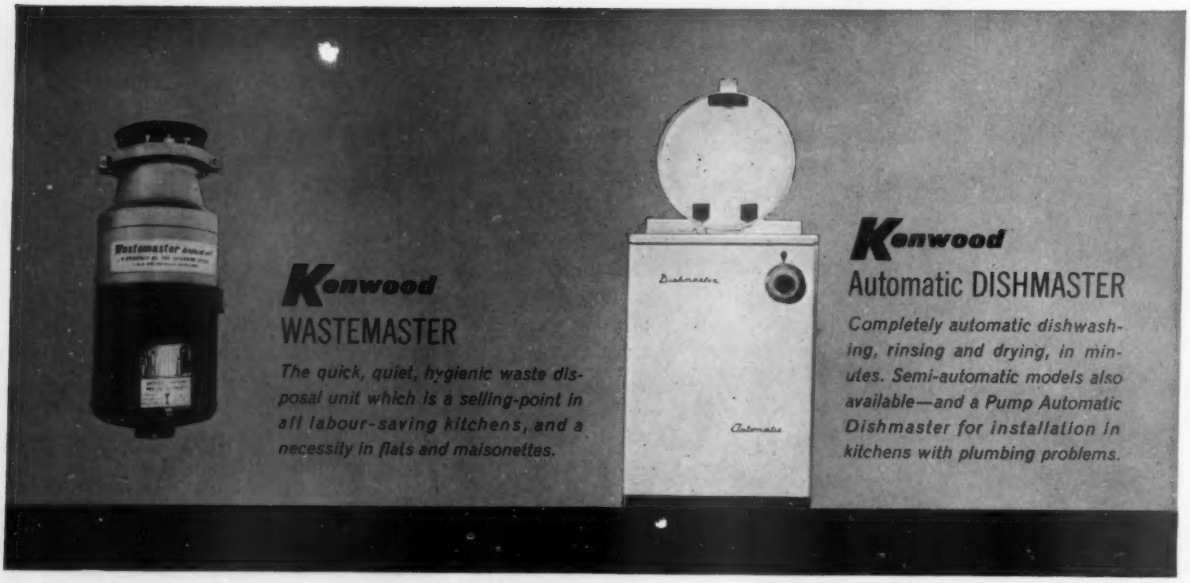
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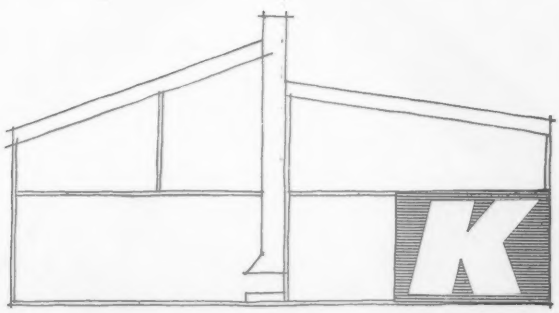


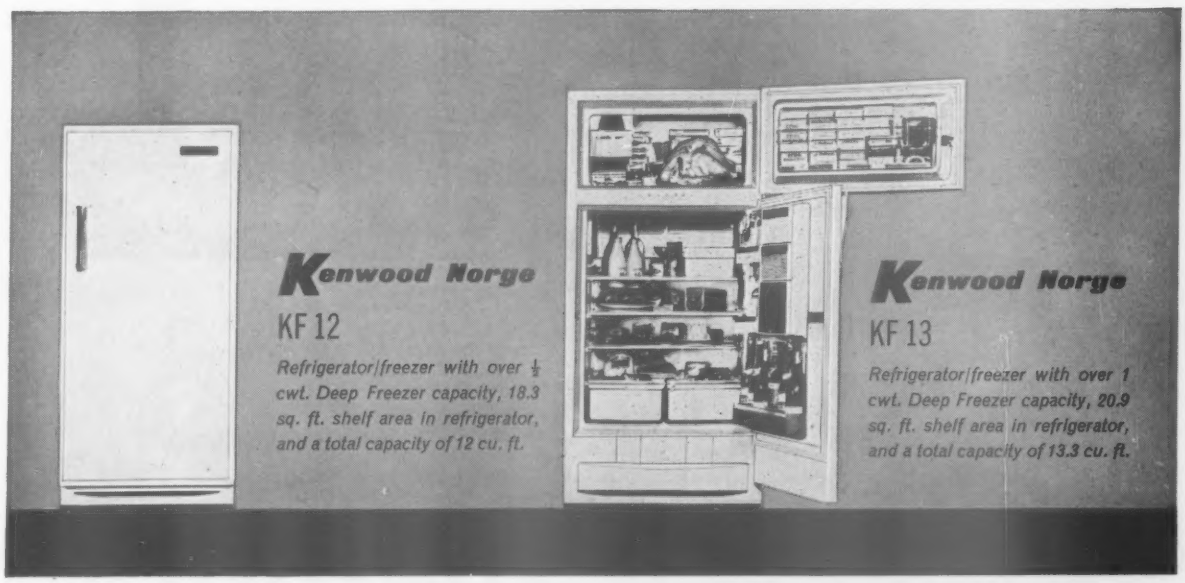
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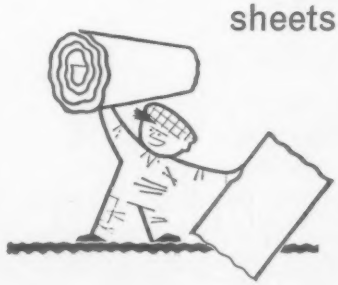


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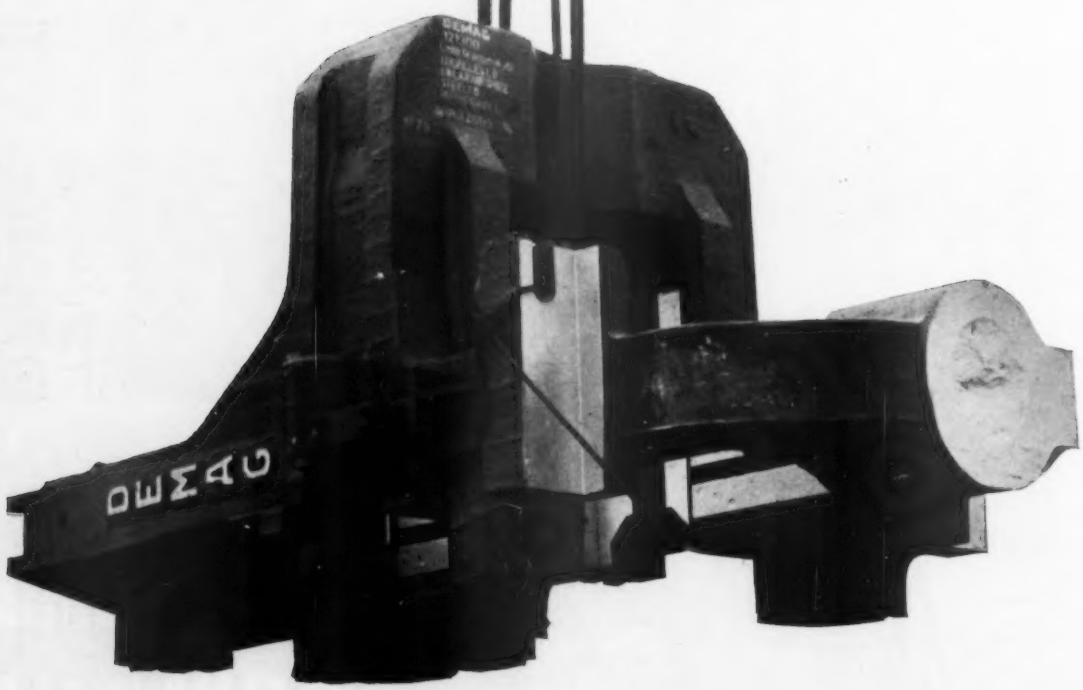
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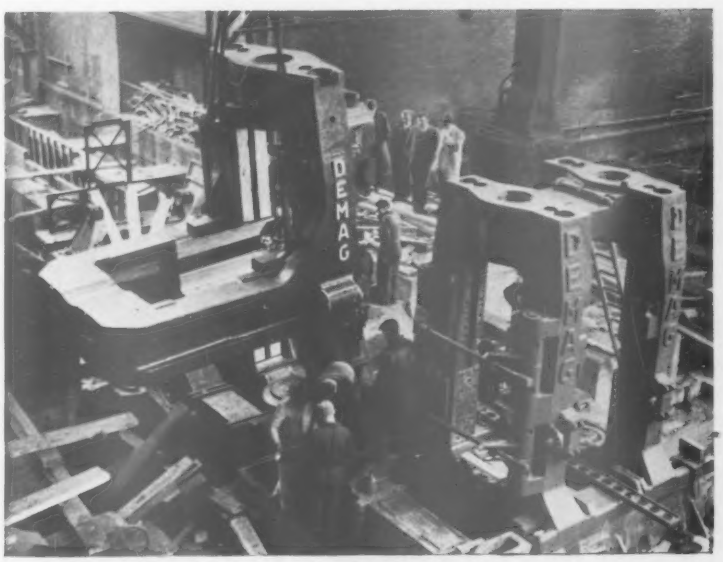
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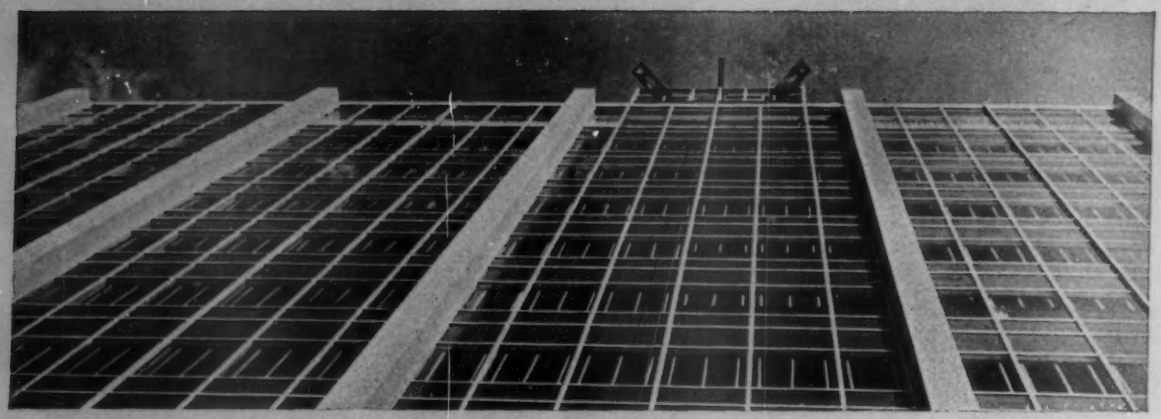


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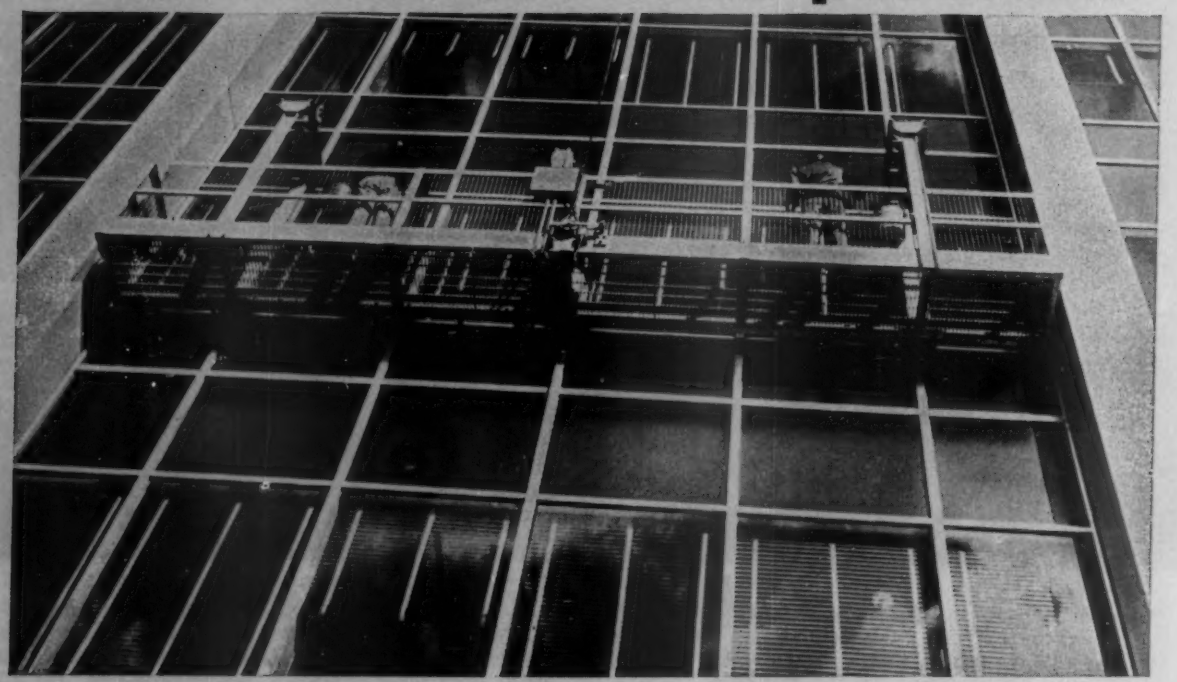
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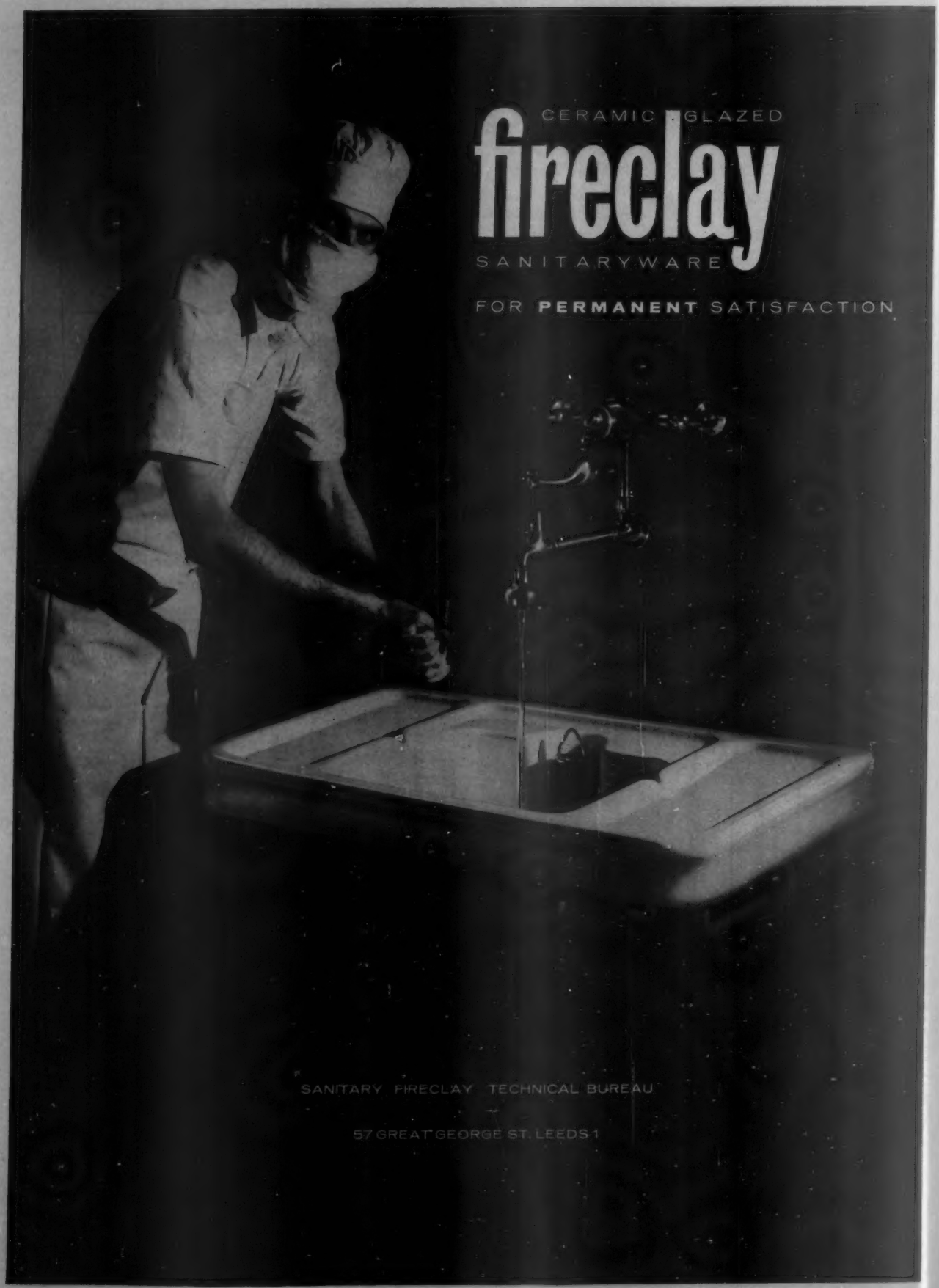
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By A. F. B. Nall, A.M.I.San.E., A.M.Inst.W.

Fireclay is a deep-mined clay which is subjected to a temperature of 1,200°C. to fuse the porcelain-like glaze to its strong, dense body to produce a homogeneous whole. The finished ware has, in effect, been washed in fire, for it is sterile and aseptic, clean and wholesome. Modern designs avoid germ traps and facilitate maintenance, so that this initial sterility may be preserved through a long and useful life.

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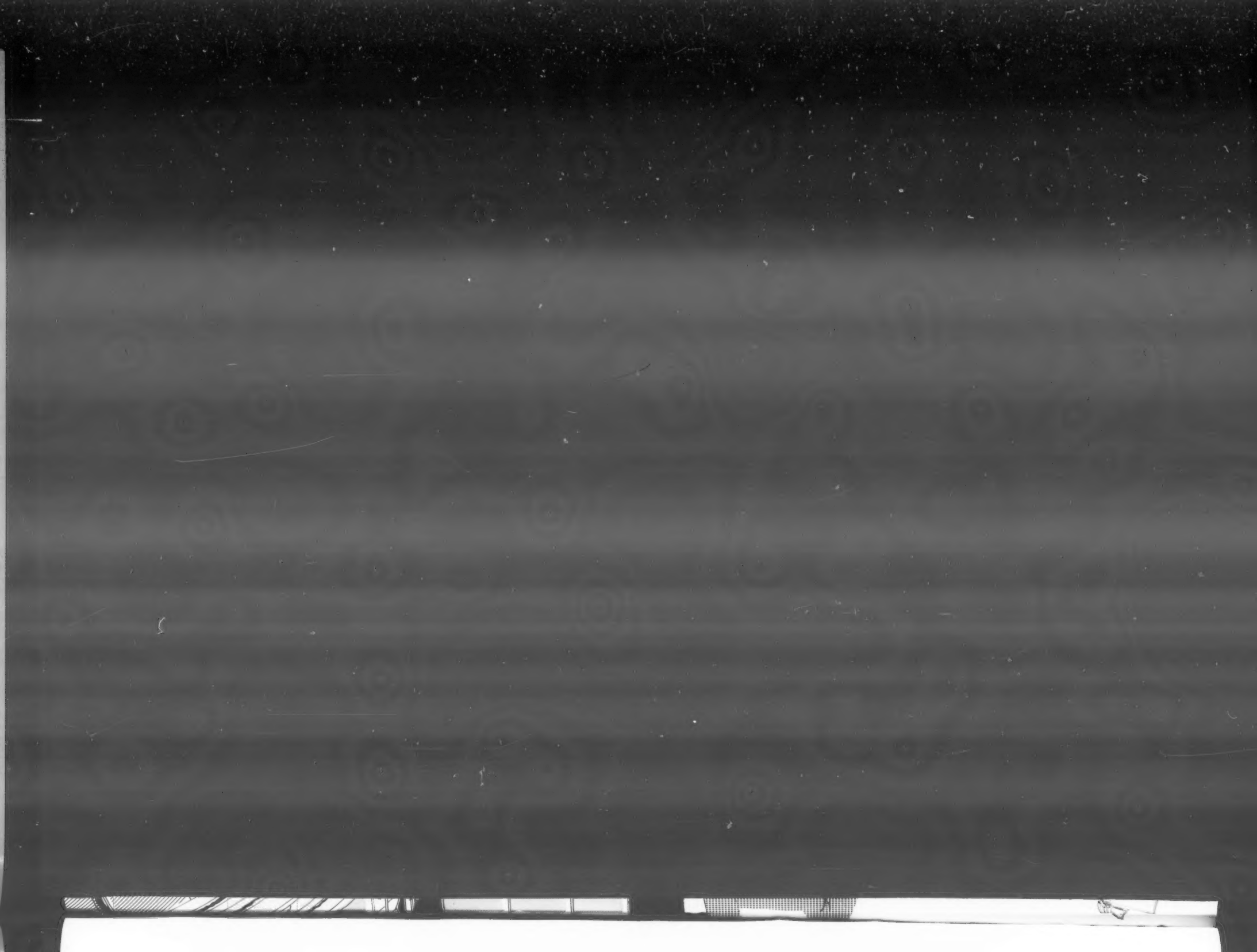
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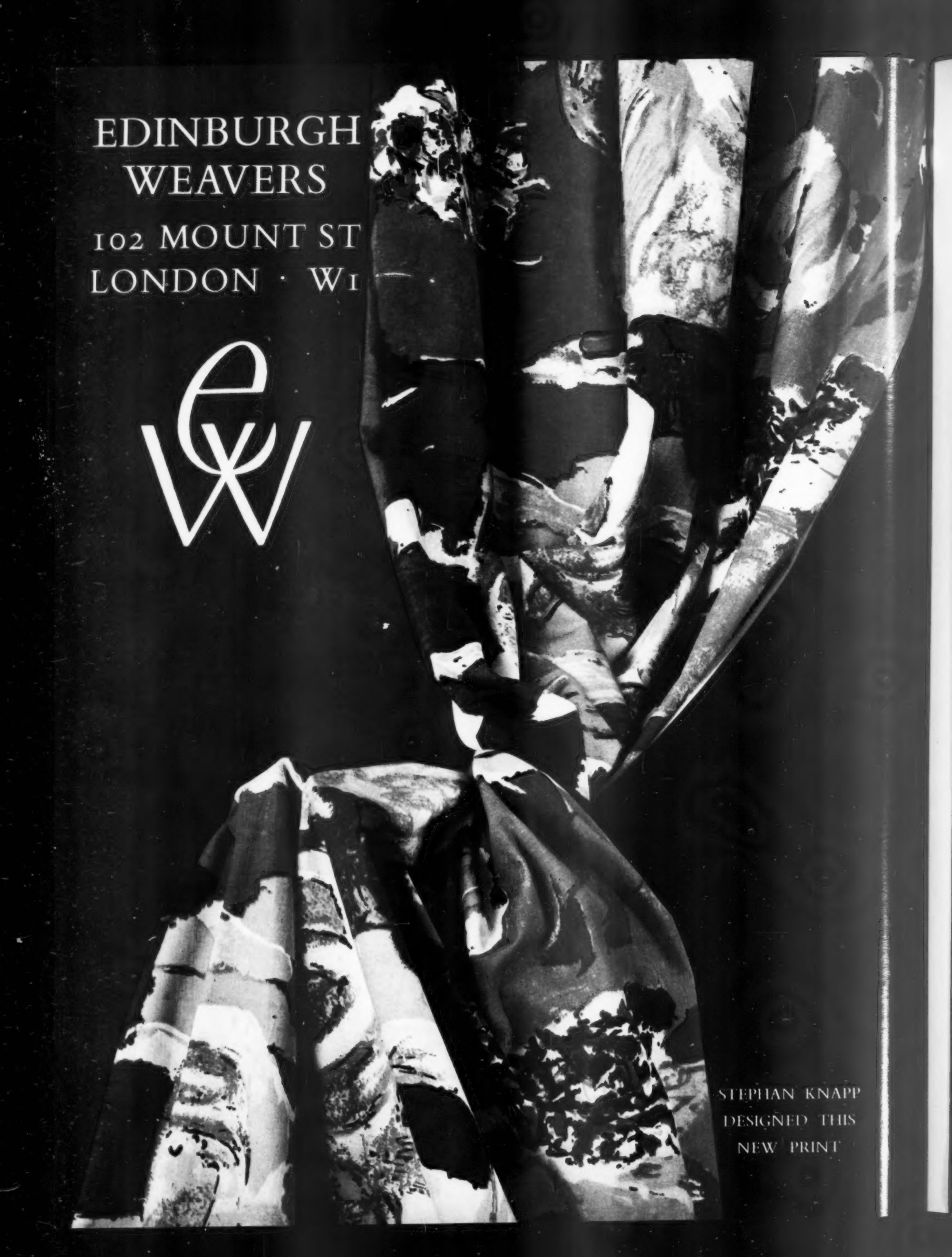
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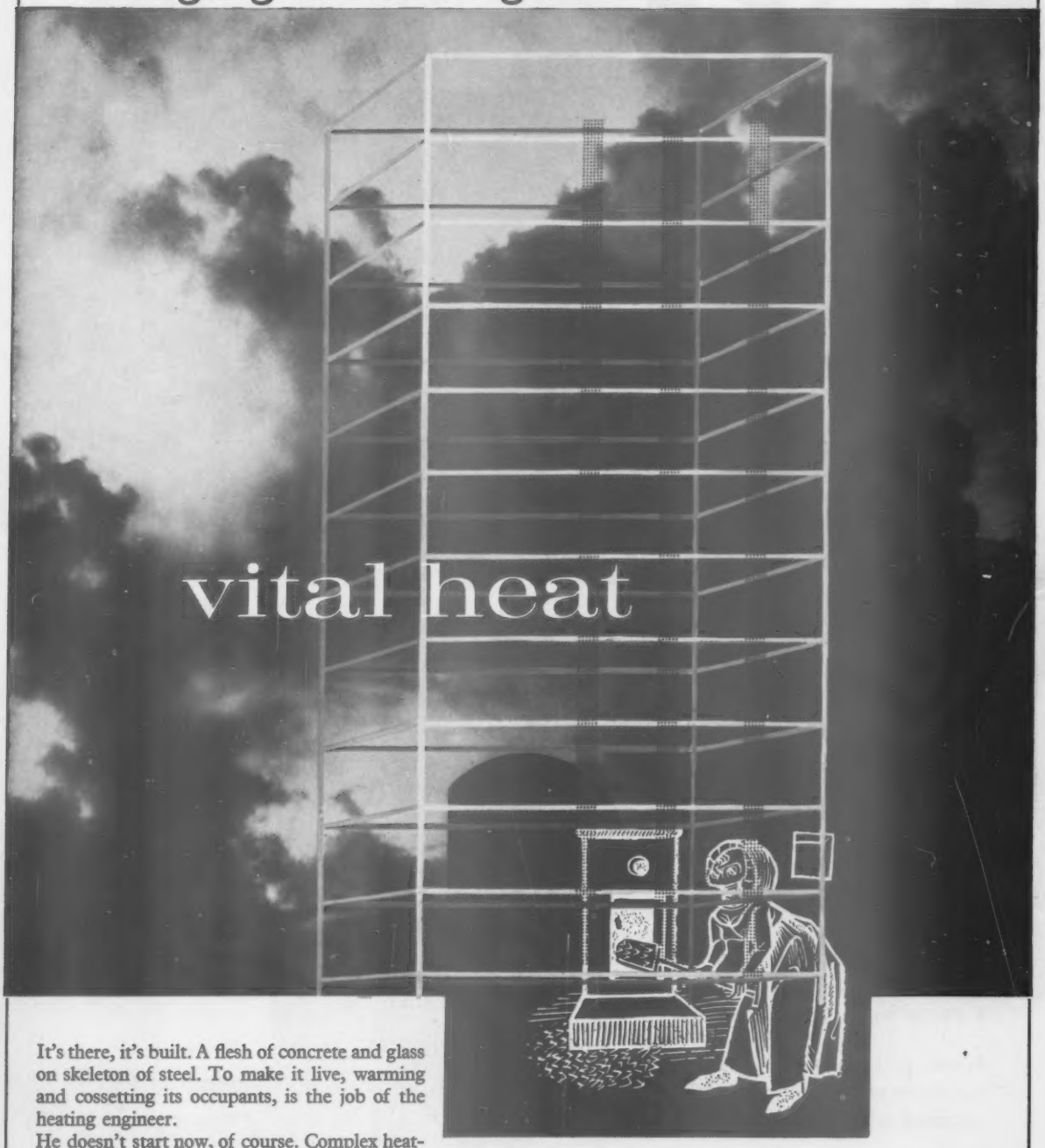
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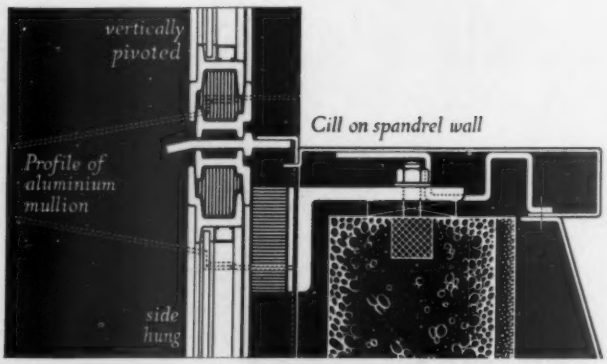
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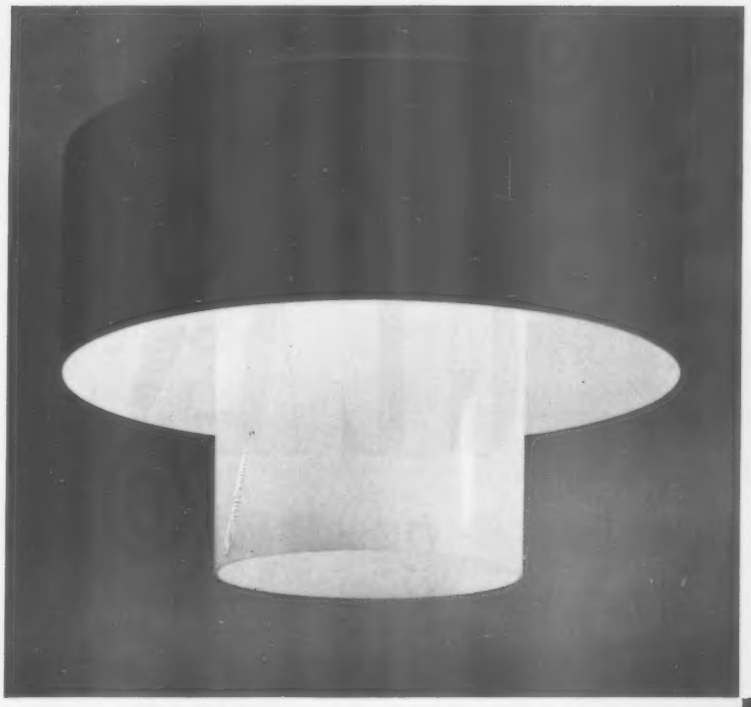
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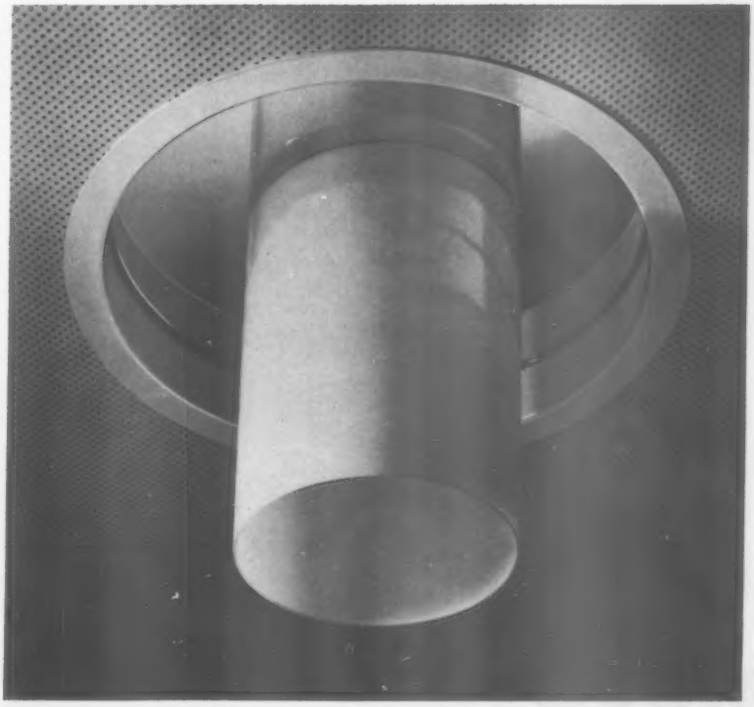
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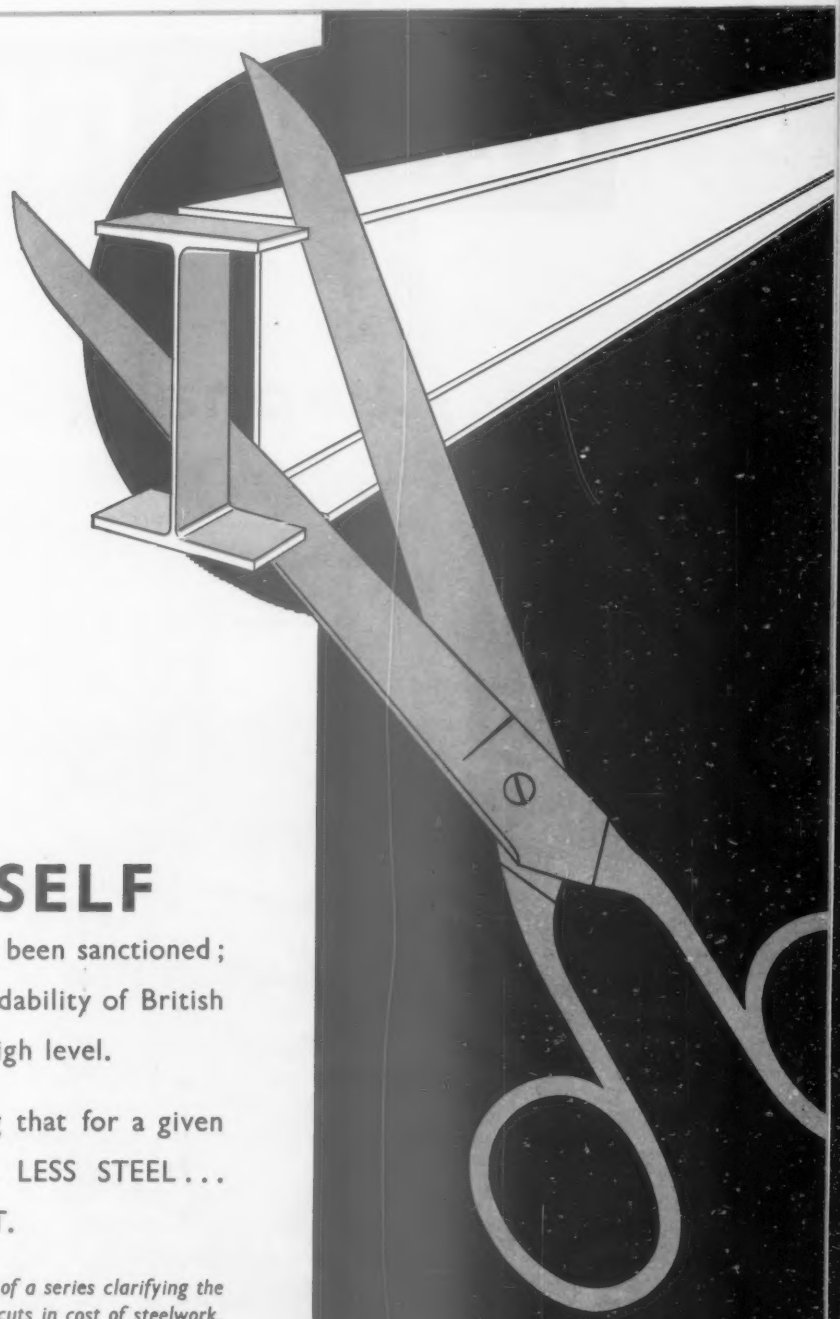
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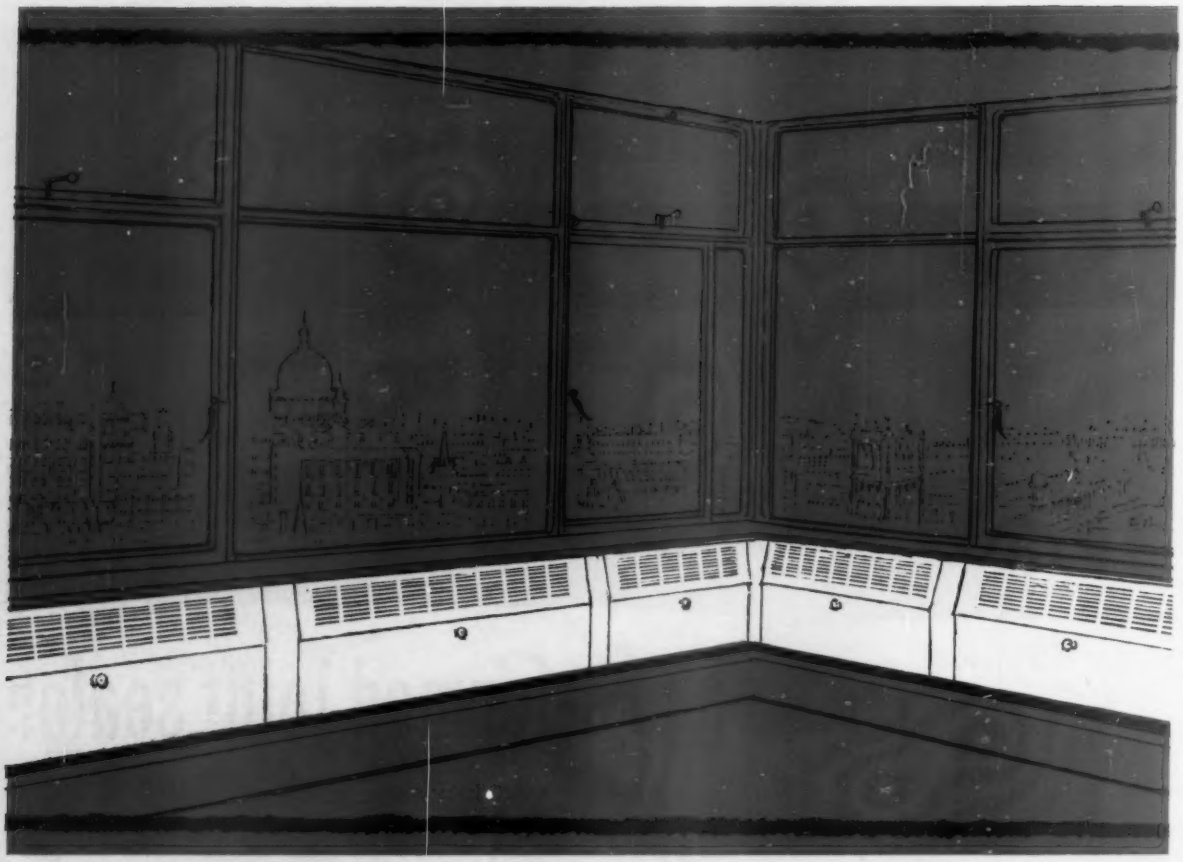
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for STATE HOUSE, High Holborn



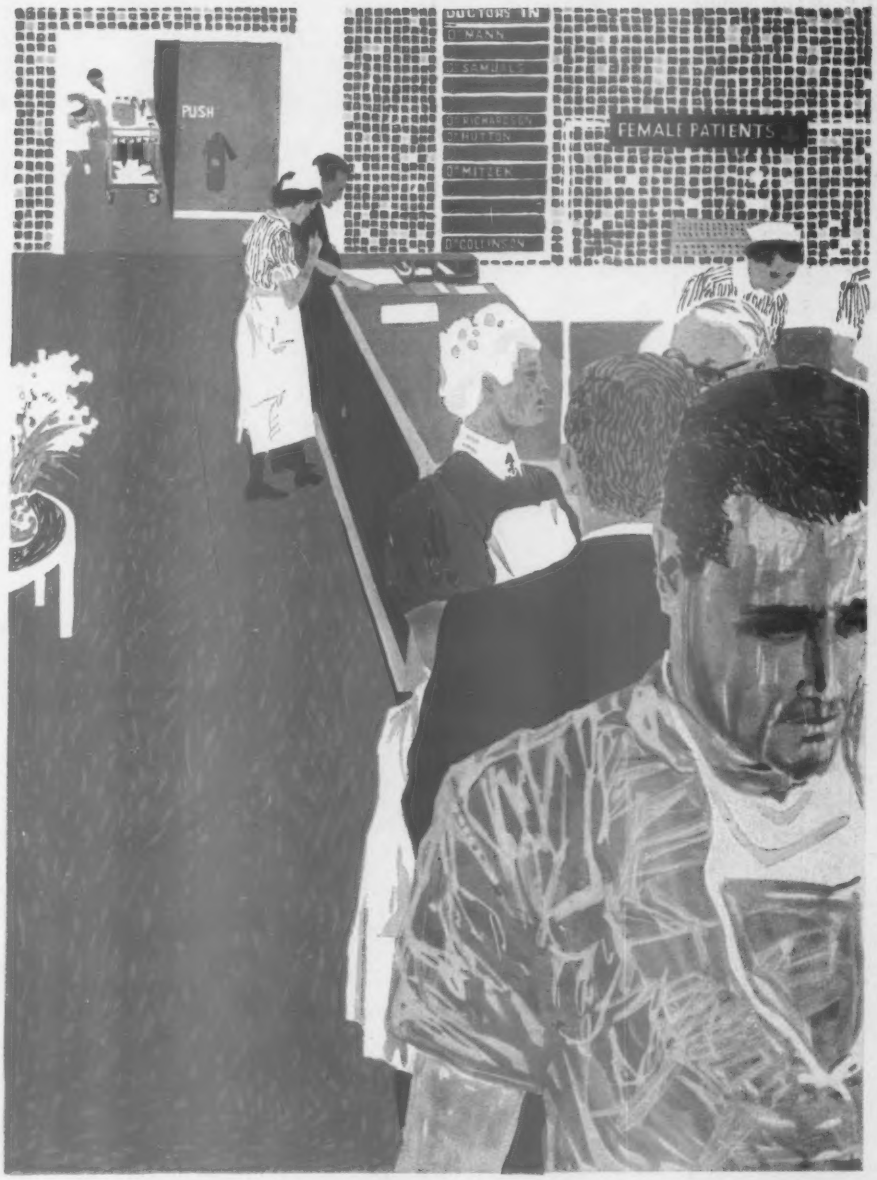
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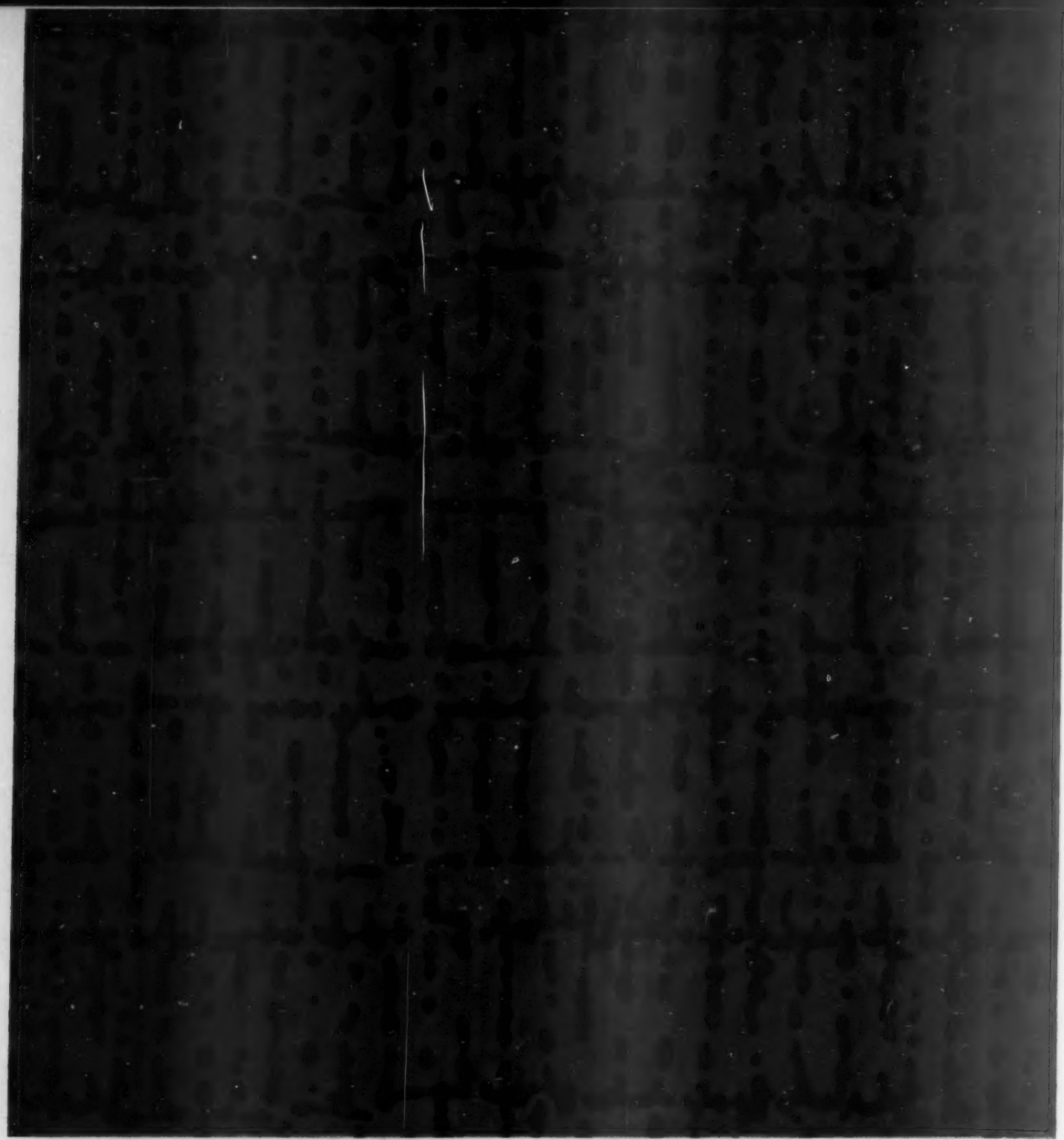


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"THELMA" stands for THE LINOLEUM MANUFACTURERS' ASSOCIATION, 127 VICTORIA STREET LONDON, S.W.1. *For further information write to the Association or to any of the following members:* BARRY OSTLERE & SHEPHERD LTD., Kirkcaldy · DUNDEE LINOLEUM CO. LTD., Dundee LINOLEUM MANUFACTURING CO. LTD., 6 Old Bailey, London, E.C.4 · MICHAEL NAIRN & CO. LTD., Kirkcaldy · NORTH BRITISH LINOLEUM CO. LTD., Dundee · SCOTTISH CO-OPERATIVE WHOLESALE SOCIETY LTD., Falkland, Fife · JAS. WILLIAMSON & SON LTD., Lancaster.

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"Cypher" designed by Elizabeth M. Gould. M 1012 Shown to Scale.

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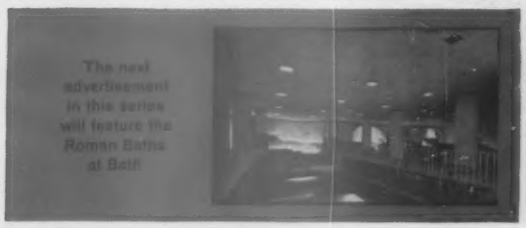


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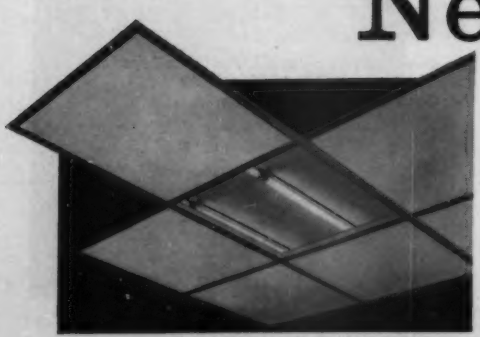


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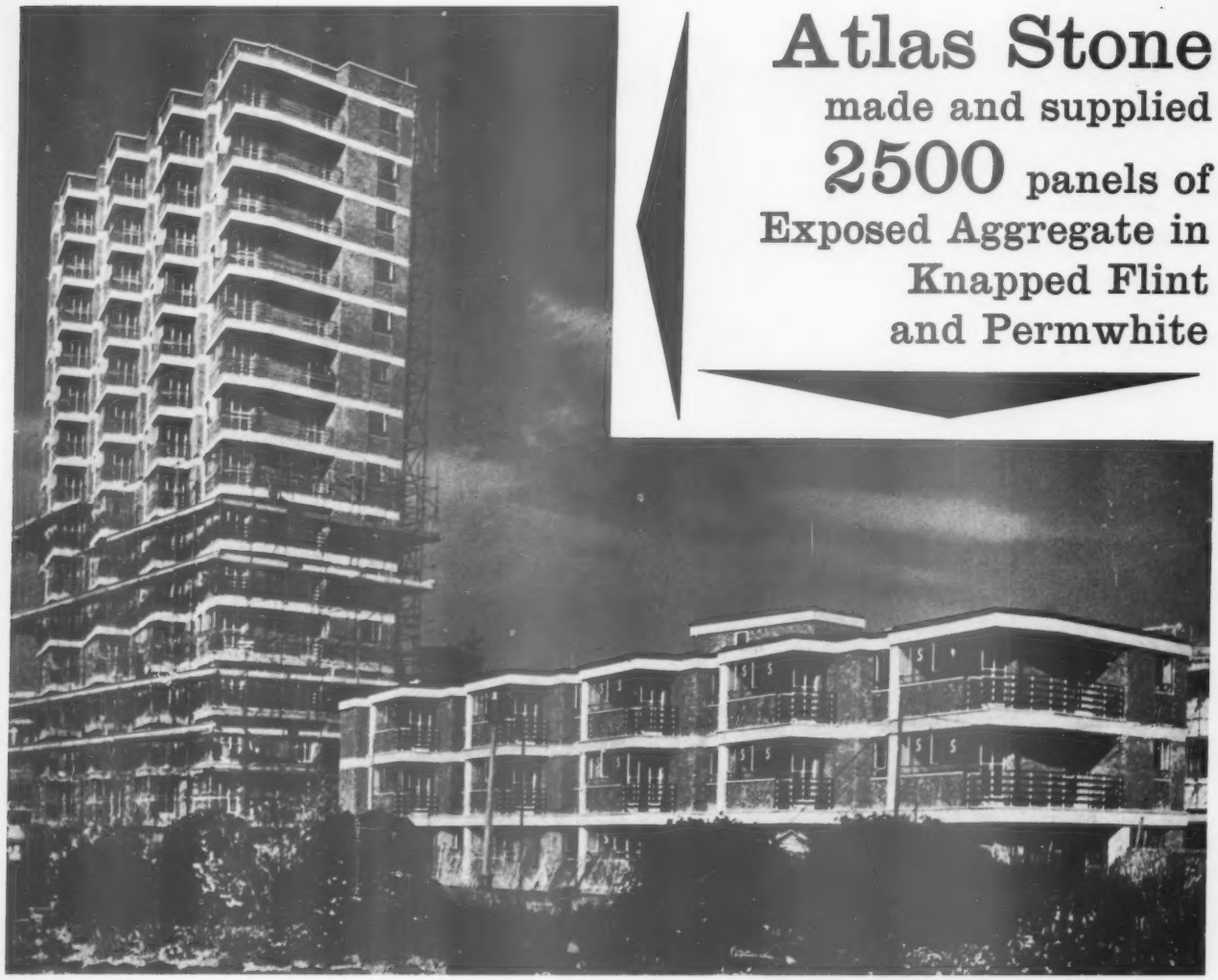
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Architects: Samuel Jackson & Son

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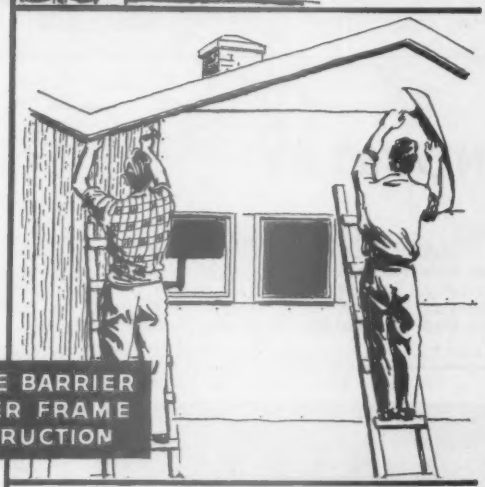
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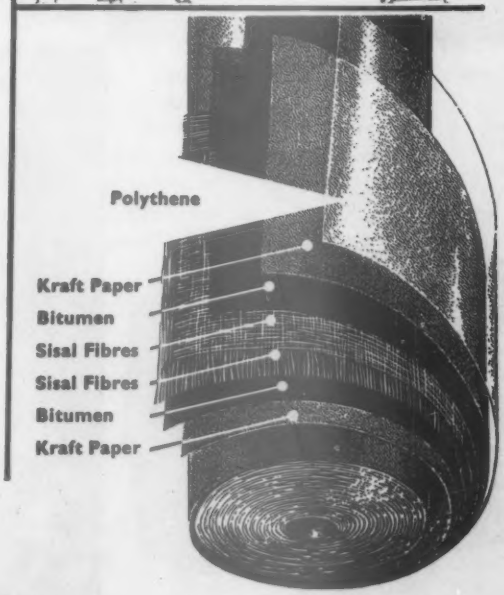
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APPLICATIONS

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Under timber floors
Moisture and air stop in walls
Underlay to concrete
Separation layer between concrete
Curing concrete
Form lining
Protection from frost
Temporary tarpaulin



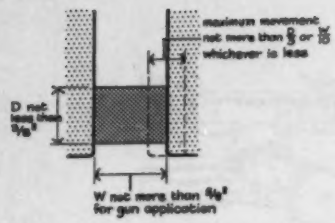
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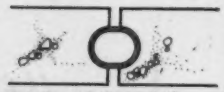
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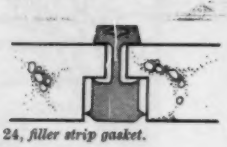
PHONE: DOMinion 6666
GRAMS: Brickwork Barking



22, *volume of mastic.*



23, *hollow tubular gasket.*



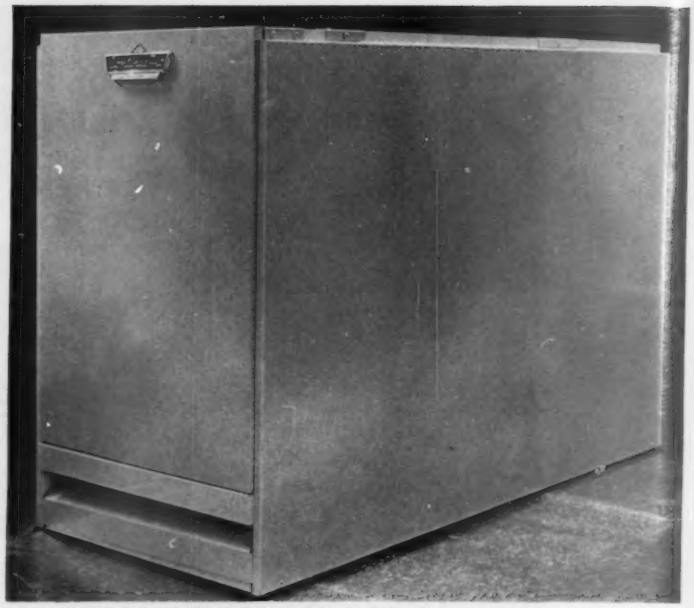
24, *filler strip gasket.*

continued from page 430]

mastic should not be expected to accept movement greater than one-third of its depth or one-tenth of its width, 22. Hidden and inaccessible mastic pointing is not recommended, as it should in all cases be accessible for periodic maintenance and renewal.

Because of the many disadvantages of oil-based mastic, it will often be worth while to consider the use of one of the synthetic rubber sealants. Polysulphide synthetic rubber, despite its high cost and the need for skill in application, possesses remarkable adhesion and weathering qualities. Uncured butyl rubber, although endowed with most of the weathering qualities of polysulphide rubber, is only about one-tenth the price and, since it is a one part compound, is easy to place.

A further development, which has found favour in light cladding, is the use of preformed gaskets of neoprene, cured butyl rubber and p.v.c. Gaskets generally require pressure to ensure watertightness, and this may be attained by forcing the panels against hollow tubular gaskets, 23, or by using the familiar 'zip-in' filler strip, 24, first used by Saarinen at General Motors.



1, *floor-mounted oil-fired boiler by Johnson & Starley Ltd.*

THE INDUSTRY

Warm air heating

Yet another Canadian company has invaded the warm air heating field in this country. Johnson & Starley of Northampton have entered into an agreement with Continue-Flo Heating Products Ltd., of Canada, and are manufacturing a range of oil-fired boilers, with outputs of from 50,000 to 500,000 B.t.u.s per hour. The Continue-Flo system includes prefabricated duct sections and accessories and these also are manufactured by Johnson & Starley. All models of the boiler with outputs from 85,000 B.t.u.'s upwards are pressure jet operated. The heat exchangers and air filters and other working parts are contained in a simple enamelled steel casing. The primary heat exchanger is fabricated from aluminized high temperature steel and the secondary exchanger from cold rolled mild steel. The range of boilers includes both floor mounted, 1, and suspended.

Johnson & Starley Ltd., Bedford Road, Northampton.

Office partitioning

The well detailed partition, 2, was designed by Edward Samuel, A.R.I.B.A., and is manufactured as a standard assembly by Streatham Joinery Ltd. The photograph shows an installation in Thorn House. Basic frame comprises 2 in. by 2 in.

[continued on page 434

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'Nearly 4 quid for a pencil sharpener!'



Um . . . er . . . yes Sir. But this is a somewhat unusual p-pencil sharpener. If I might be p-permitted to . . . er . . . demonstrate, Sir.

One simply has to take a p-pencil in one's right hand . . . or one's left hand would do equally well . . . and p-place it into this little . . . er . . . hole.

P-press down gently . . . um . . . so. And . . . see . . . the sharpener starts cutting automatically.

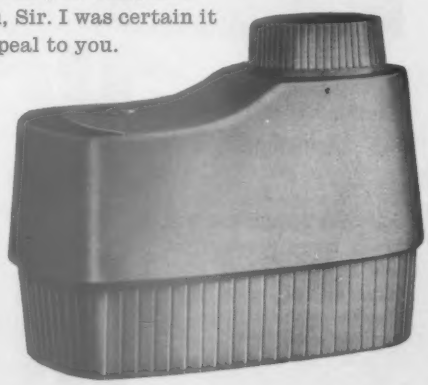
Allow it to run for a few seconds. Lift out. And p-presto! A p-*perfect* p-point!

Um . . . p-pardon, Sir? Oh yes, Sir. *Most* attractive. And you will observe that although it is electric, it has no unsightly flex.

If I might suggest, Sir. Just here, next to your blotting p-pad, would be the best p-place.

Er . . . just as you wish, Sir.
Thank you, Sir. I was certain it would a-p-peal to you.

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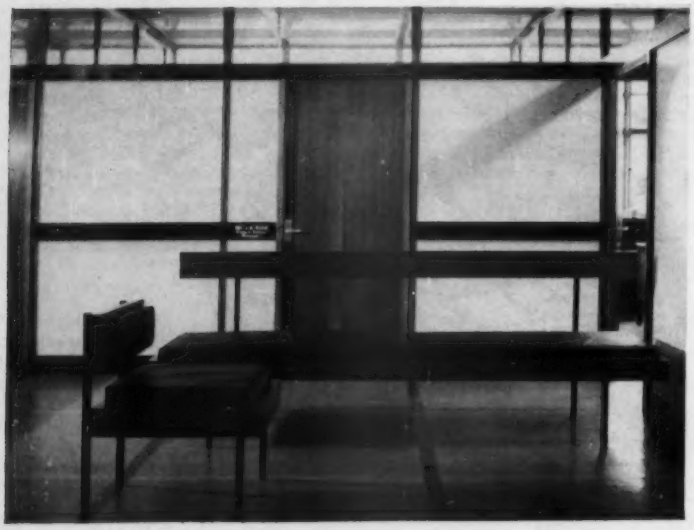
continued from page 432]

grooved mahogany posts and 5 in. by 1 in. rails. Solid infill panels are 1¾ in. thick and have a plasticized cloth finish. Clear glass above door head is 32 oz. Adjustment is by means of a screw jack at the base of the posts. The price, which is competitive, is approximately 11s. per sq. ft.
Streatham Joinery Ltd., 91-93 Effra Road, Brixton, London, S.W.2.

Acoustic duct

An irritating and quite serious problem which can arise in buildings with mechanical ventilation is the transmission of sound from one room to another through the ventilating ducts. An American company with a relatively short but successful career in the manufacture of 'acoustically' lined ducts, has recently extended its activities to this country and is now manufacturing its range of 'Quiet Vent Silencers' here, 3. The range includes a type for fitting to the back of a door, one for fixing above ceiling level and one for building into a wall. Each type is made in six sizes and the one for building into a wall, which is the one illustrated, includes two standard sizes which are suitable for building in between studs of a timber framed wall. The units consist of 22 gauge steel outer casing and a 24 gauge perforated steel inner casing with insulation between. The manufacturers claim an average transmission loss of 40 decibels through a frequency range of 256–2,048 c.p.s.
Industrial Acoustics Co., Ltd., Victor House, Norris Road, High Street, Staines, Middlesex.

2, modular demountable partition, designed by Edward Samuel for Streatham Joinery Ltd.





3, the 'Quiet Vent Silencer' acoustic duct.

Acoustic Tiles

The Owens-Corning Fibreglass Corporation is now marketing its acoustic tiles in this country through Chemicals Trading Co., Ltd. The basis of the tile is a glass fibre board in four alternative finishes—*Textured*, which is simply finished with a white paint that does not seal the surface, *Perforated*, which is painted with a washable white paint, *Sonofaced* which is faced with a decorative plastic film in various patterns adhered to the edges only in order to maintain the absorption properties, and finally *Striated* which is finished with a special non-sealing white finish. The tiles are ¾ in. thick, *Textured* and *Striated* are made in 24 in. by 24 in. squares and *Perforated* and *Sonofaced* in 12 in. by 12 in. squares. Tests of the properties of the tiles have been carried out in the USA and pending tests in this country it is worth recording these details. Tests on the sound absorption coefficients were made on a ceiling mounted on a metal suspended system with a 10 in. air space above and for the middle frequency range (1,000 c/s) were found to be 0.81 for *Textured* and *Striated*, 0.8 for *Perforated* and 0.76 for *Sonofaced*. On thermal conductivity the glass fibre base material has a K factor of 0.24 at 75°F. mean temperature. Light reflection is claimed to be over 85 per cent for *Striated*, over 80 per cent for *Textured* and *Perforated*, and over 65 per cent for *Sonofaced* (white finish).

The Chemicals Trading Company has a number of recommended fixers and points out that for any contract of 15,000 sq. ft. or more tiles may be made to special sizes.
Chemicals Trading Co., Ltd., Cree House, 18-20 Creechurch Lane, London, E.C.3.

Timber waterproofing agents

A considerable amount of research has been carried out by the Timber

[continued on page 436



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continued from page 434]

Development Association on varnishes and other clear finishes as a protective coating to exposed woodwork. These, however, are comparatively costly finishes and it is possible to employ a cheaper type of finish provided the limitations are understood and appreciated beforehand. The TDA has now produced a report entitled *Timber Waterproofing Agents* by V. R. Gray and Marian Wheeler which is an account of recent work by them which aims to assess the effectiveness of less expensive finishes of the water repellent type.

Waterproofing agents of this kind do not prevent for long the washing out of colouring materials from the wood by rain, nor do they influence the absorption and loss of water vapour from the wood. They do, however, make water penetration more difficult and enable the wood to shed water more readily. The experiments described in the report followed the performance of twelve waterproofing treatments, including several proprietary types. All the finishes were applied to samples of western red cedar and the effectiveness of the various treatments was assessed by measuring the wetting angle of water on the samples treated with repellents both before and after exposure to the weather for one year. The authors of the report point out that water repellents attract dirt from the atmosphere and that darkening of the wood appears to be greater in treated than untreated material.

Conclusions drawn from the investigation suggest that various wax compositions give the most durable water repellent treatment. Varnish-like 'seals,' linseed oil and silicone resin do not withstand a year's exposure, although a proprietary mixture of linseed oil and wax provides fairly good results.

Copies of the report are obtainable from the TDA at 3s. 6d. each.
Timber Development Association, 21 *College Hill, London, E.C.4.*

CONTRACTORS etc

College Hall, Leicester University. *Architects:* Sir Leslie Martin in association with Trevor Dannatt. *Lettering and typography:* Colin Forbes. *General contractor:* Wilson & Lovatt (Wolverhampton) Ltd. *Sub-contractors: Heating contractors and hot water services:* Weatherfoil Ltd. *Joinery and windows:* East & Son. *Metal windows:* Crittall Manufacturing Co. *Patent metal windows and patent roof lights:* Quicktho Engineering Co. *Patent glazing over dining hall:* Luxfer Ltd. *Glazing over spiral stair:* Standard Maclean Ltd. *Roofing:* William Briggs. *Precast concrete units for spiral stair:* Croft Granite. *Wood block, strip floors, cork tile and plastic tile:* Stevens & Adams. *Sanitary fittings:* Stitsons Ltd. *Main kitchen installation and ventilation:* Radiation Ltd. *Wardrobes and other specially designed furniture:* Wreake Valley Craftsmen. *Ironmongery:* H. & C. Davies. *Lightning conductor:* R. C. Cutting. *Metalwork:* Metalcraft Ltd. *Flush doors and dining hall joinery:* Wilson Lovatt Ltd. *Cut out lettering, signwriting and exit signs:* Hall of New Cross. *Internal telephone system:* Modern Telephones. *Special electric fires:* Electroway Ltd.

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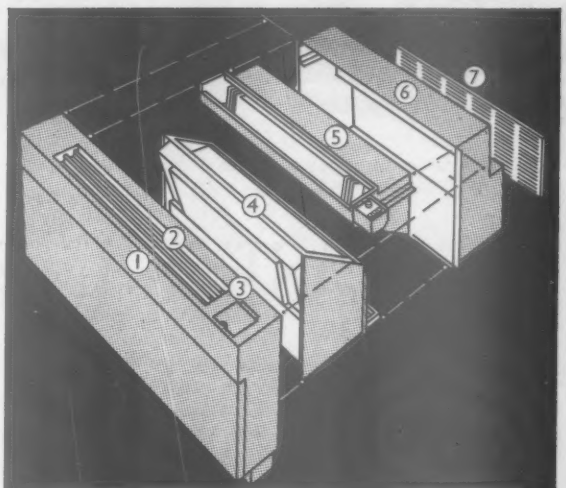
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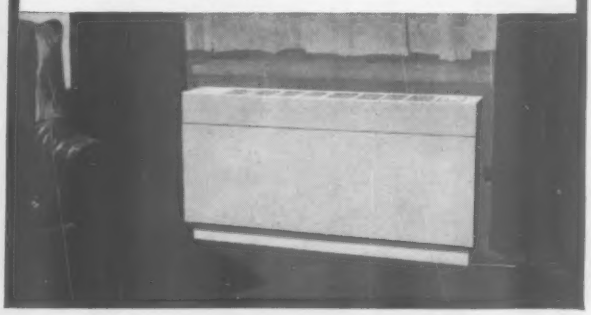
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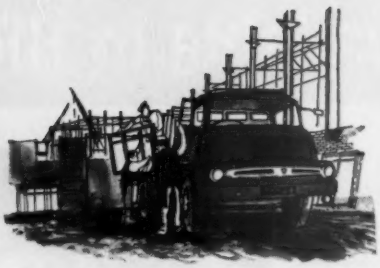
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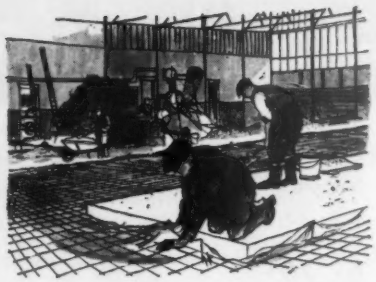
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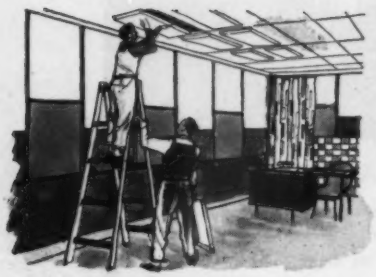


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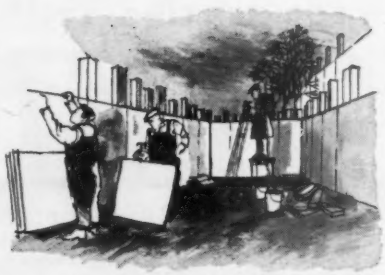
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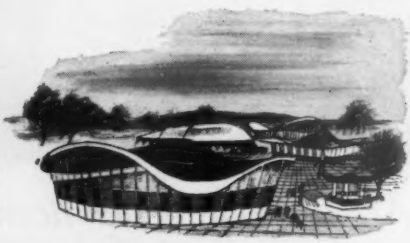
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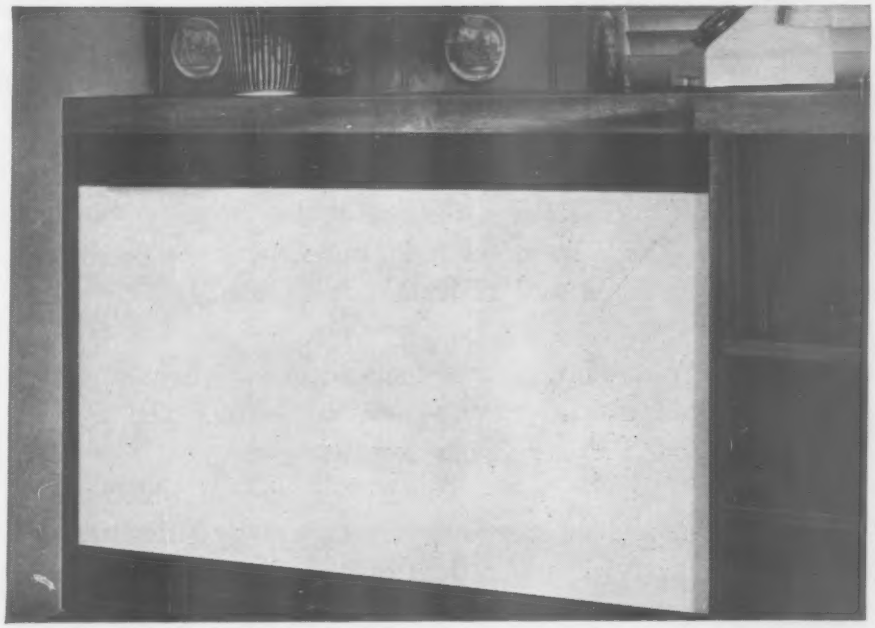
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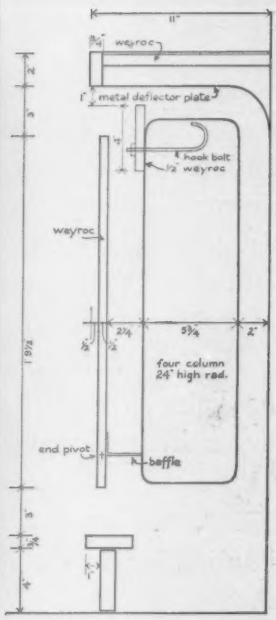
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The trend in lighting today is towards high illumination. High illumination is an excellent thing in itself, but until now it has inevitably been accompanied by excessive glare with consequent discomfort to the eyes. This discomfort glare, caused not only by the light source itself, but also by the fittings, results in the increased light becoming instead of an aid to efficiency, the very reverse, an actual distraction.

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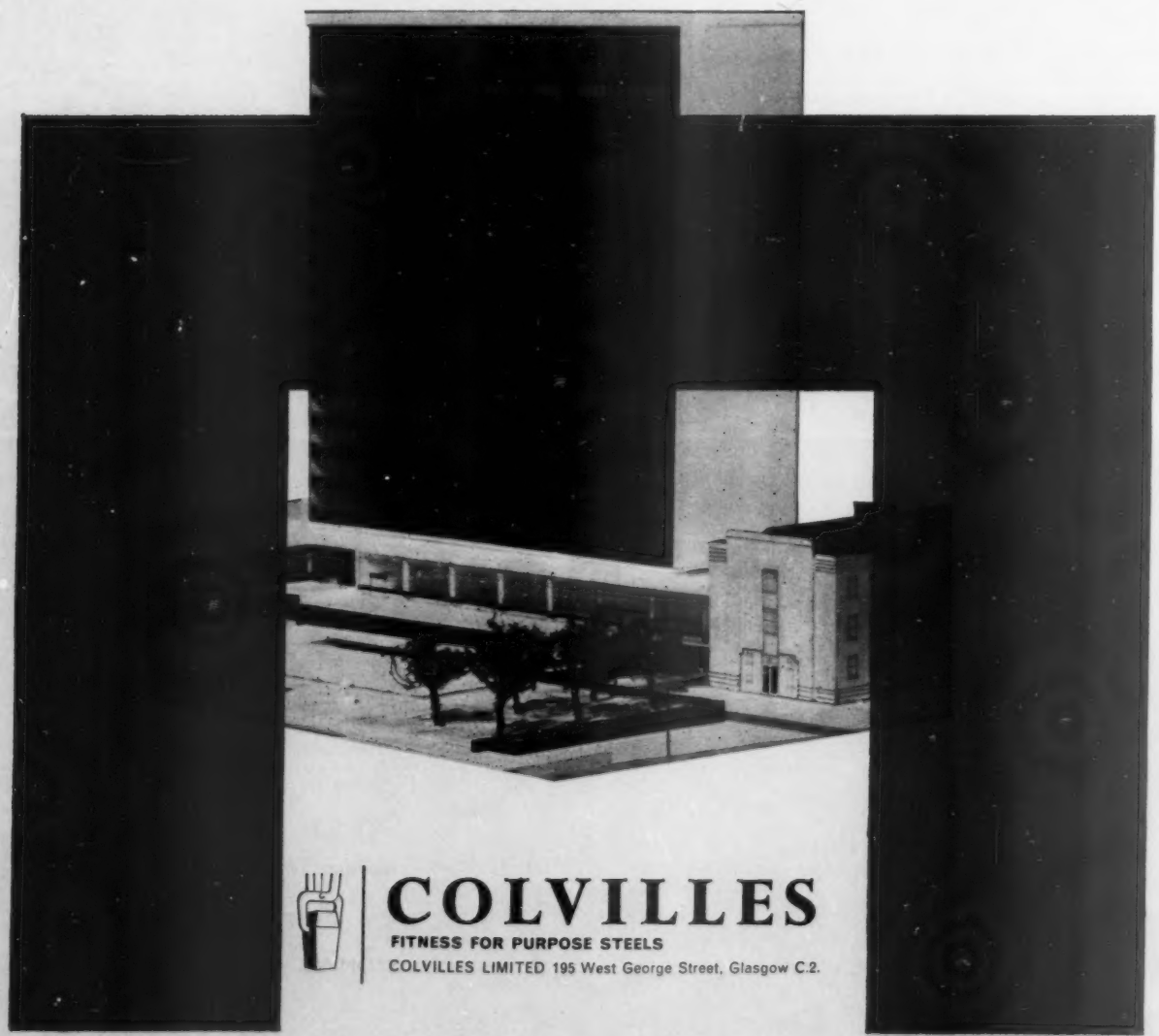
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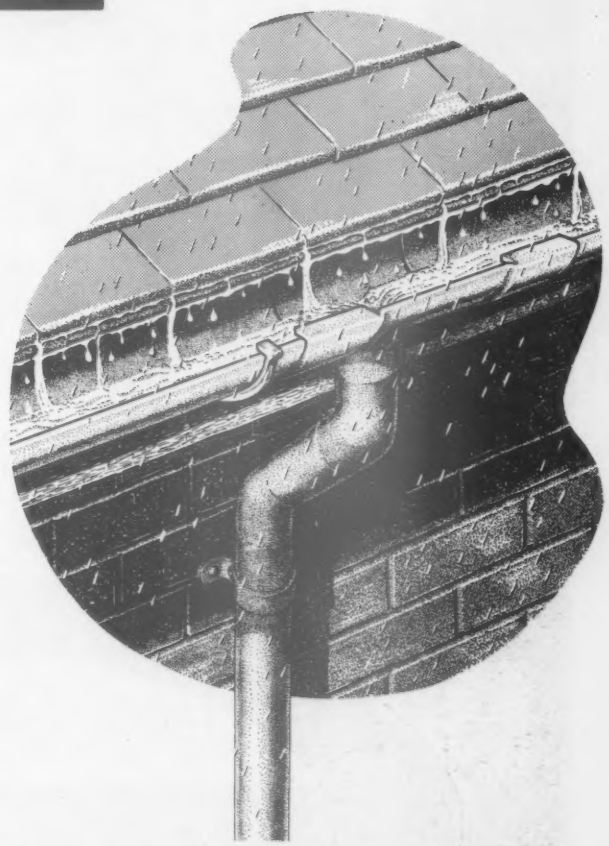
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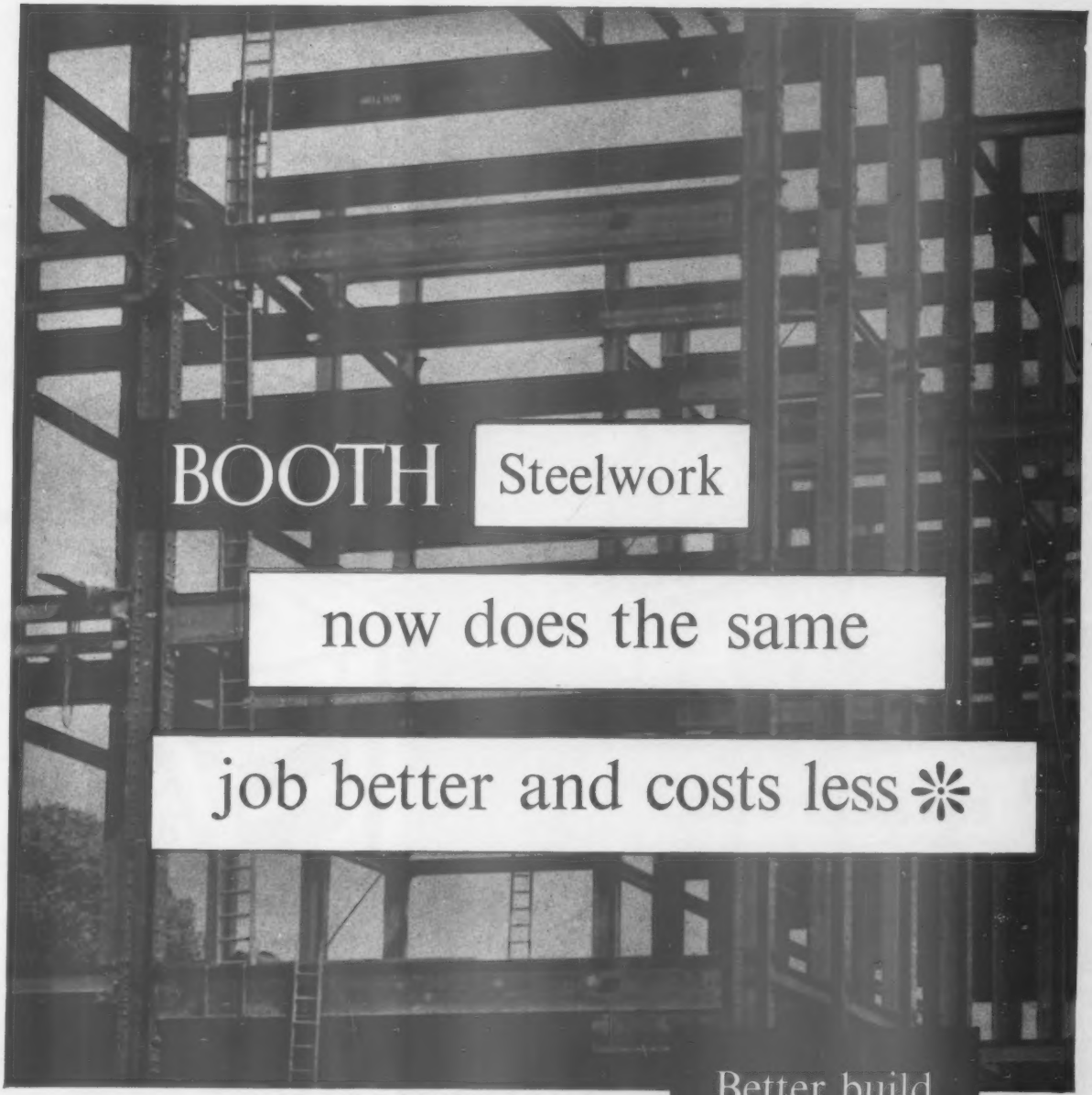
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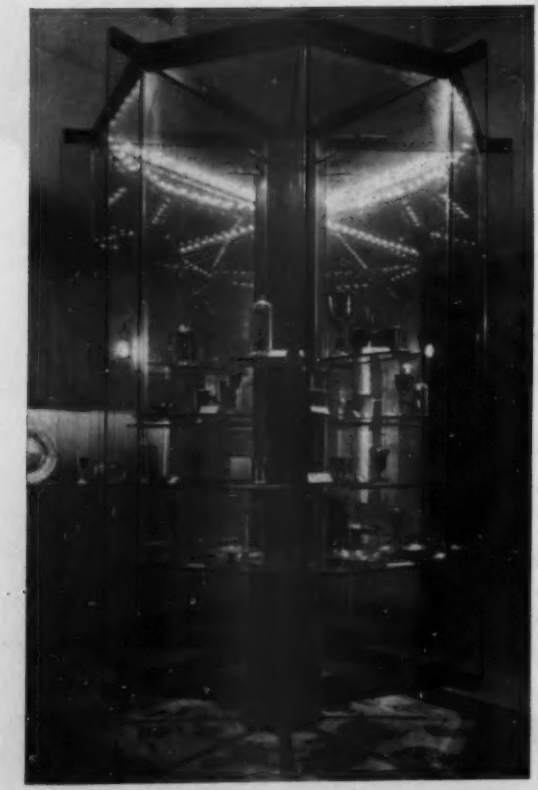
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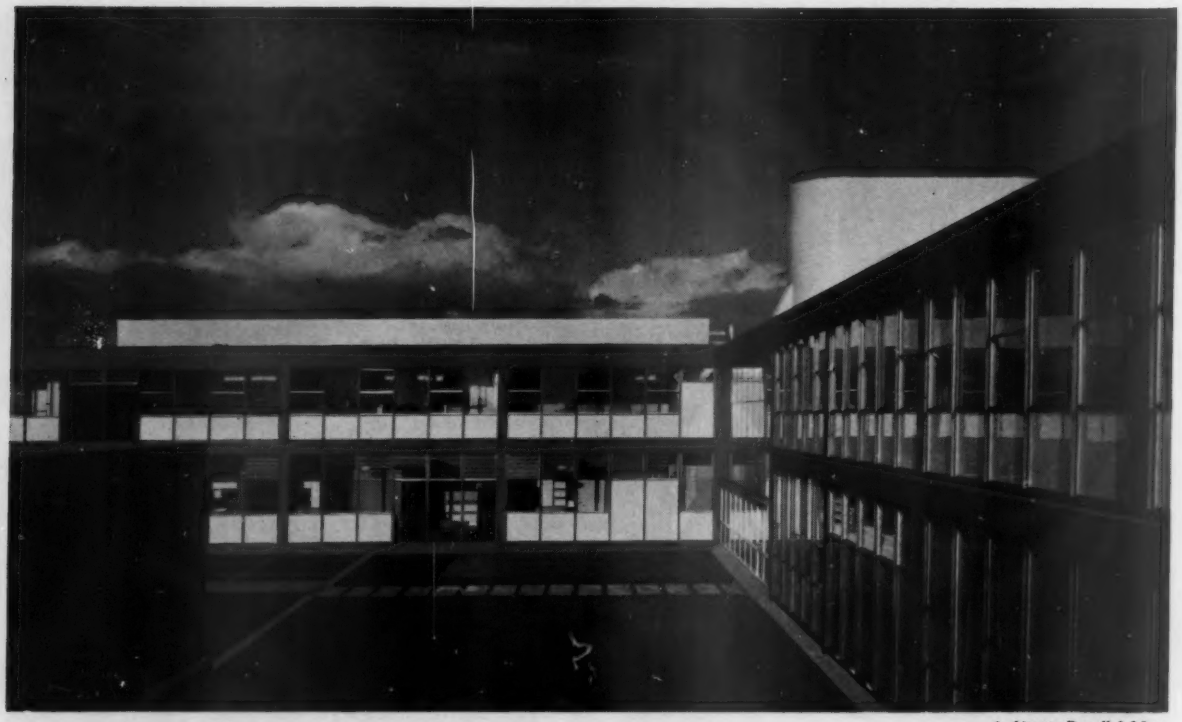
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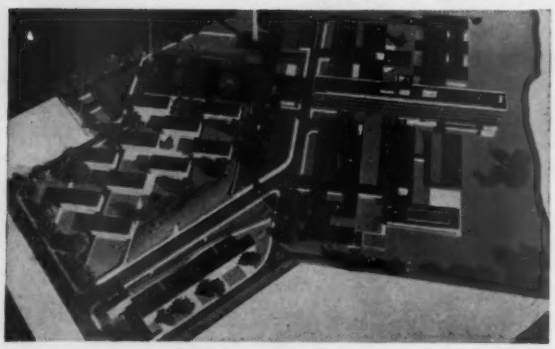
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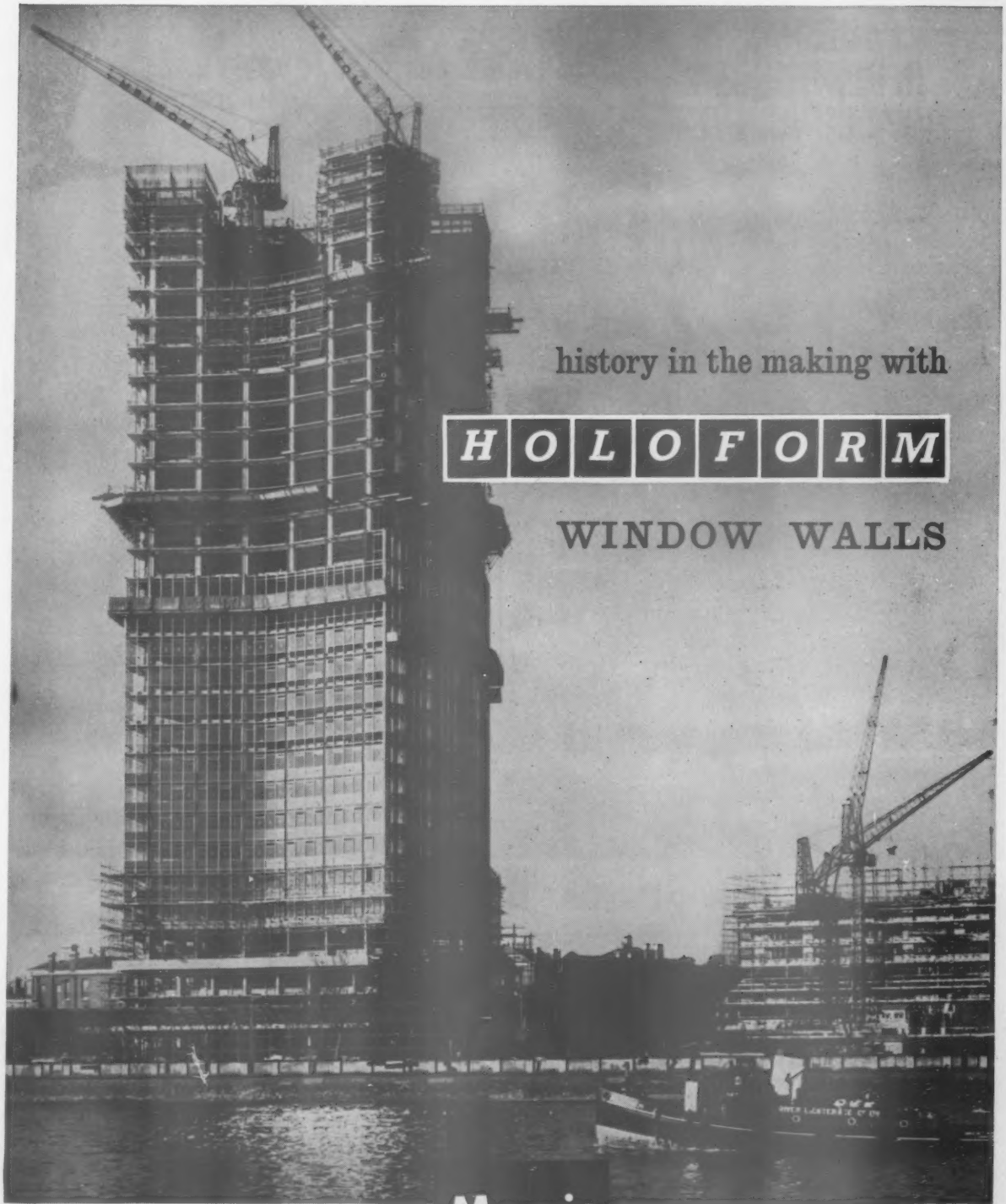


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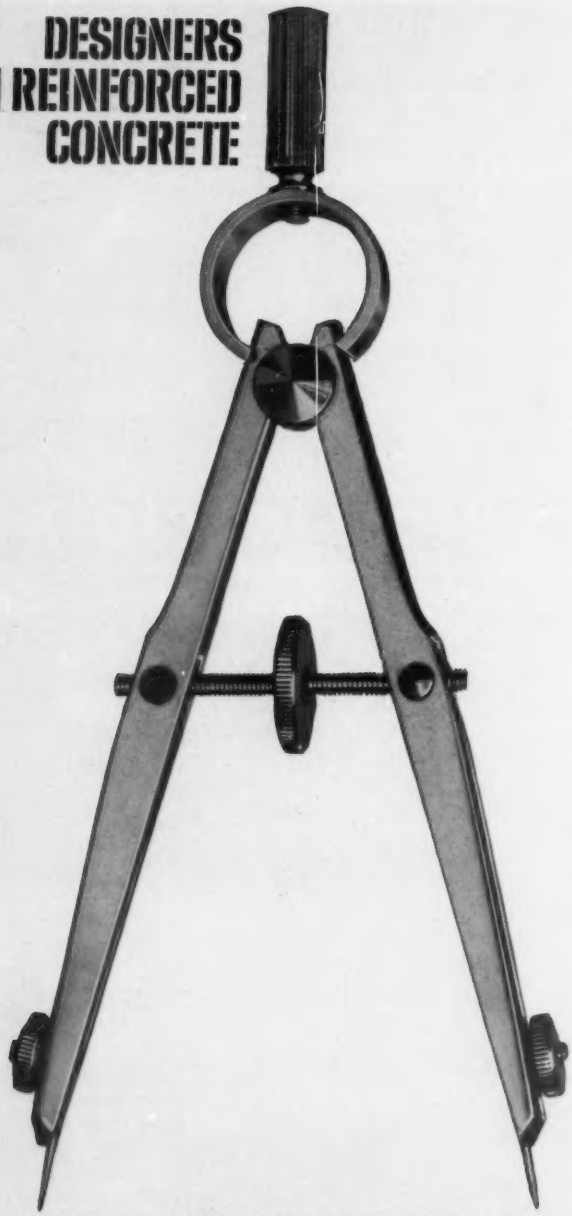
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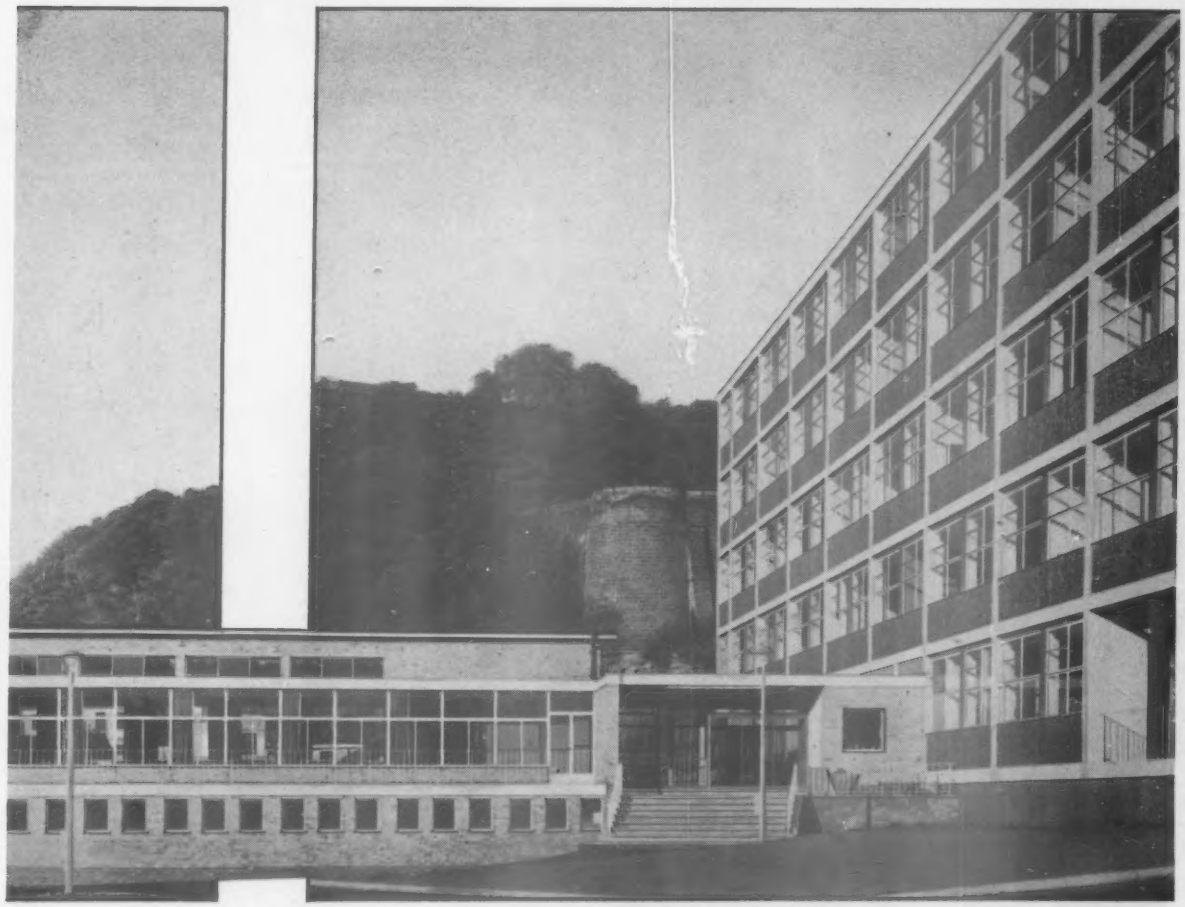
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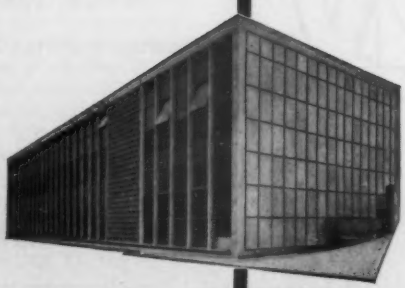


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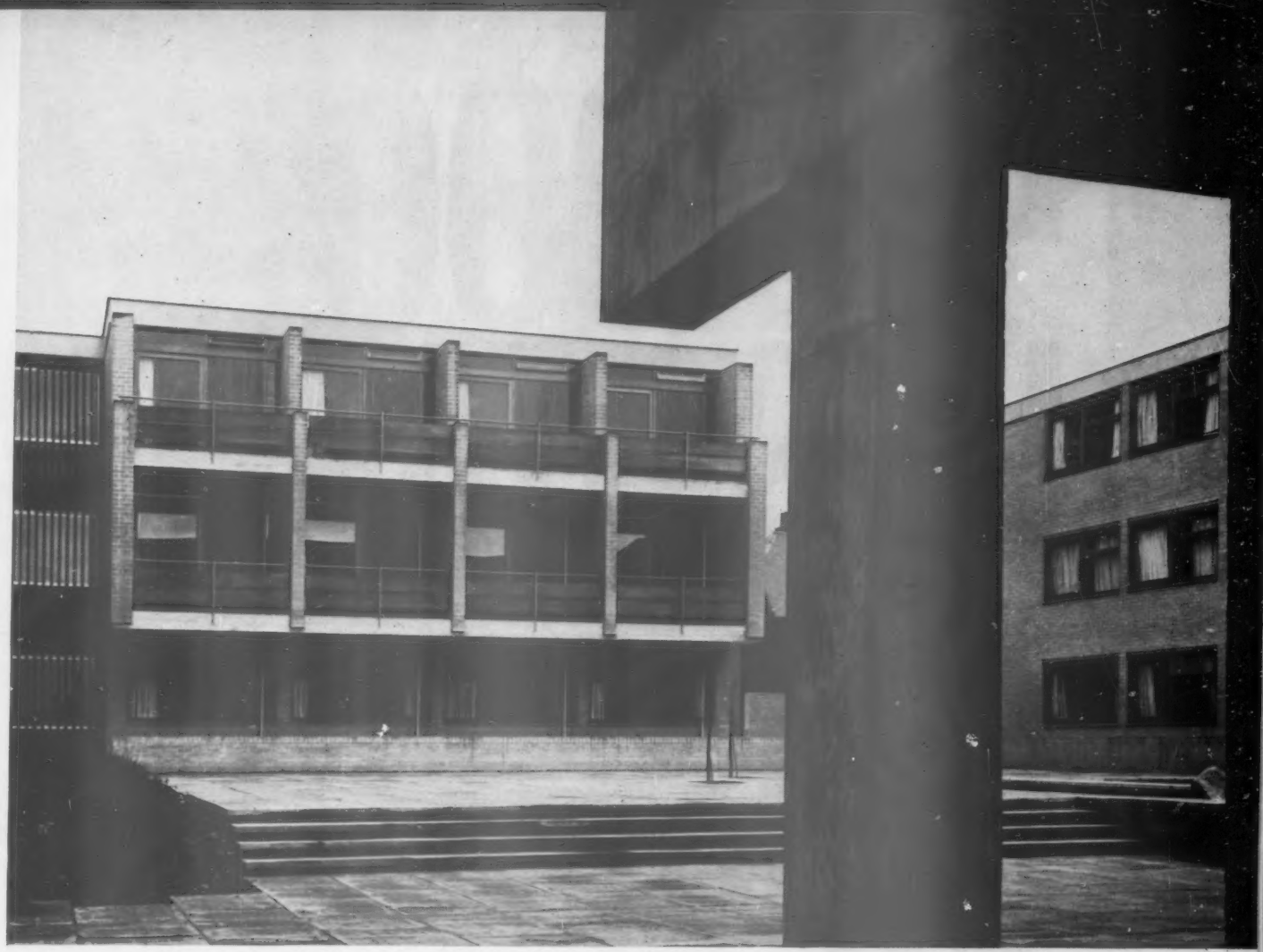
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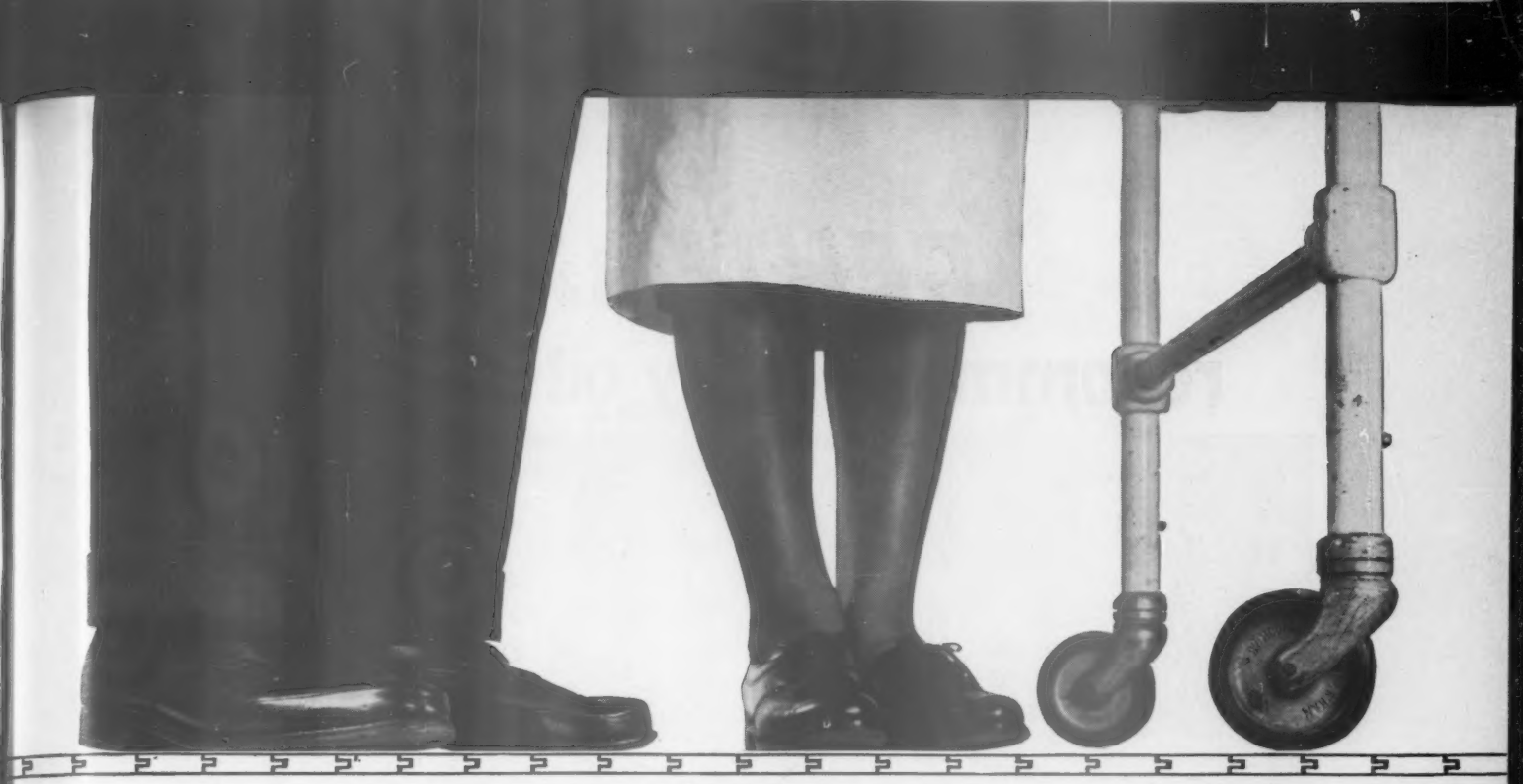
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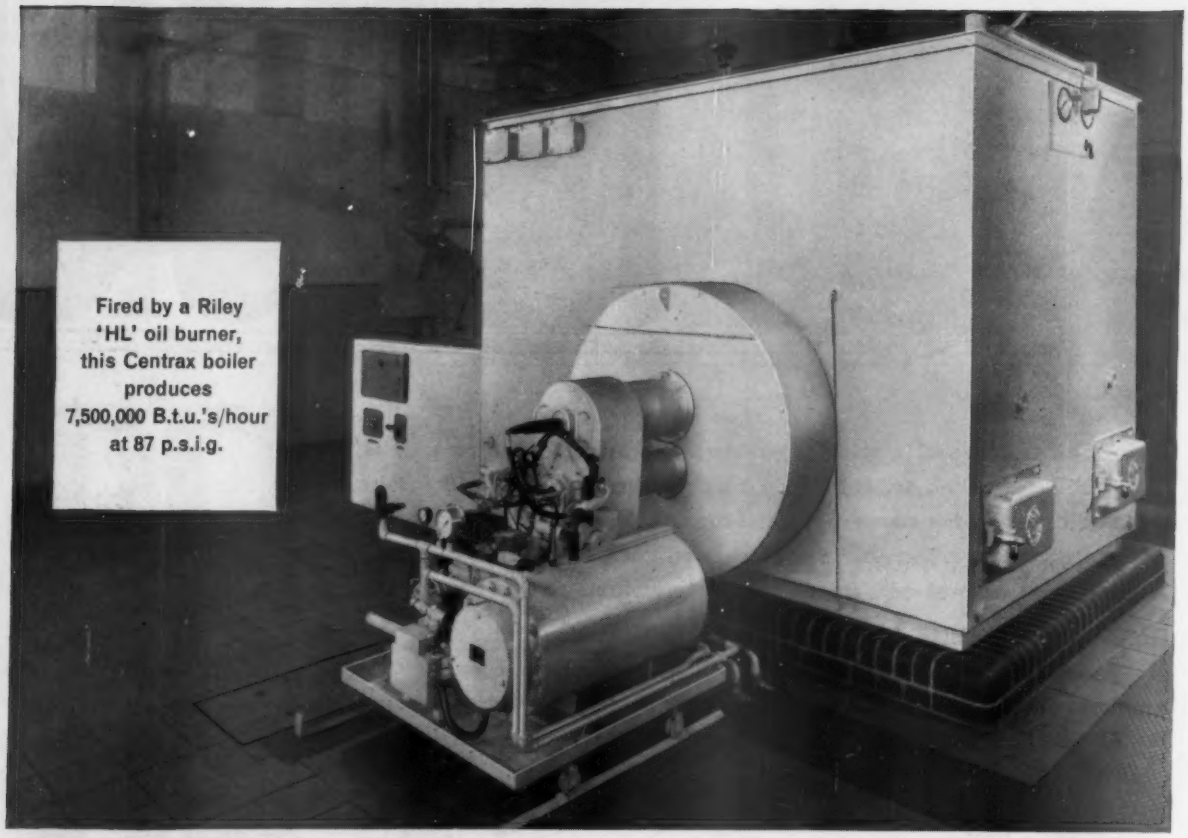


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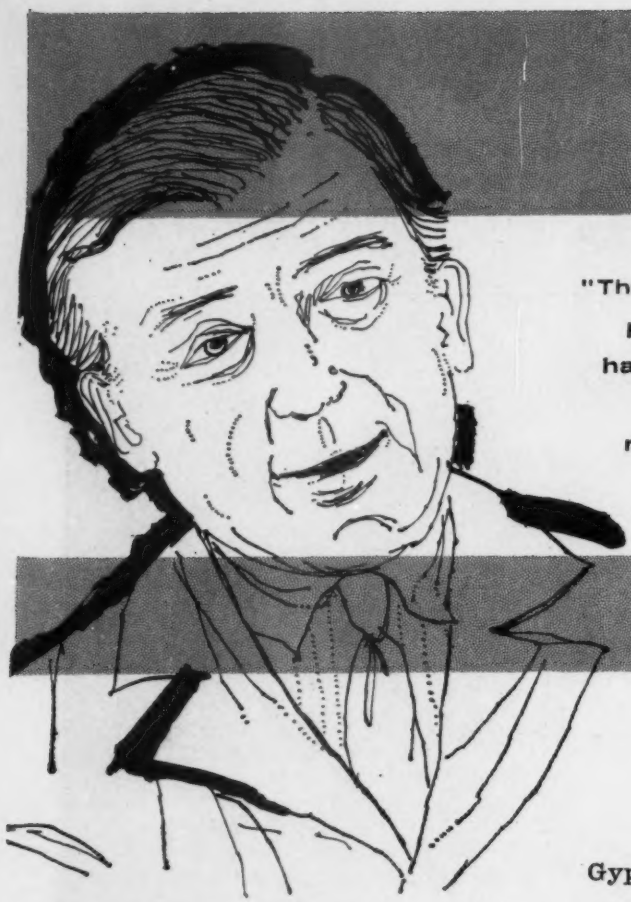
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News from Hull

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A new block of luxury flats and offices will shortly be completed in Park Crescent, W.1—the lovely crescent near Regent's Park, famous for its fine Nash houses. The west side of the crescent was heavily damaged by enemy bombing during the war, and to preserve the character of the crescent the frontage has been rebuilt exactly to the original Nash design.

The block, which has been developed by Portland Estates Ltd., provides over 55,500 square feet of office space. There are also on the site 92 luxury flats of one, two, or three rooms, kitchen and bathroom.

In each bathroom there is an elegantly styled 'Standard' Lowline bath finished with high quality porcelain enamel. The Lowline has three possible tap positions and hand grips are optional. The wash basin is the 'Standard' Kingston mounted on chromium plated legs (although it can be wall hung or fixed on a pedestal) made from durable vitreous china. The 'Standard' Kingston double trap siphonic low level closet suite, also of vitreous china, completes the sanitary fittings in these bathrooms. 'Standard' equipment has also been used extensively in the luxurious offices. Devonian wash basins, Vitural slab urinals and Sano wash down closet suites all made from vitreous china have been used in the washrooms.

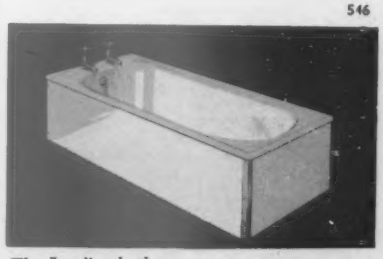
The advantages to the planner of using 'Standard' equipment in offices and domestic dwellings are obvious.

Firstly, the equipment is well designed. Both the Lowline bath and the Kingston range are outstanding examples of all that is best in modern bathroom equipment. The Vitural slab urinal is a great advance in existing urinal design and is the first full length slab to be made from vitreous china.

Secondly, 'Standard' items are made from vitreous china. This is more hygienic than ordinary ware—as it is non-absorbent, it is impossible for germs to lodge and breed in it.

Thirdly, 'Standard' equipment is extremely durable. It keeps its good looks for many years and replacement is rare so that it is more economical in the long term than other equipment. For these reasons 'Standard' sanitary fittings are being specified by architects for more and more hotels, public buildings, houses, factories, offices and schools, as each month passes.

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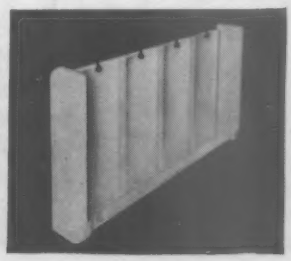
The Lowline bath



The Kingston wash basin



The Kingston low level closet suite



The Vitural slab urinal



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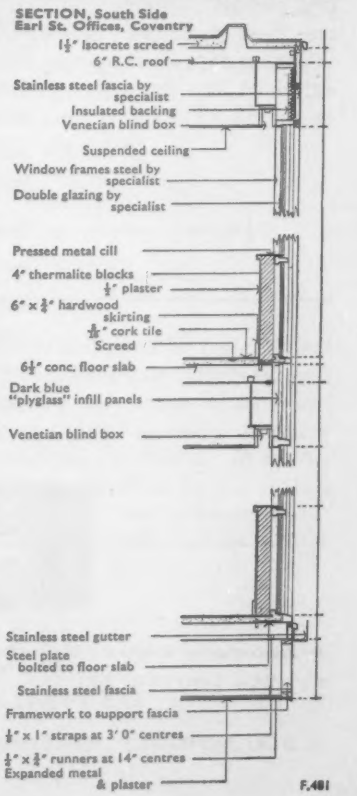
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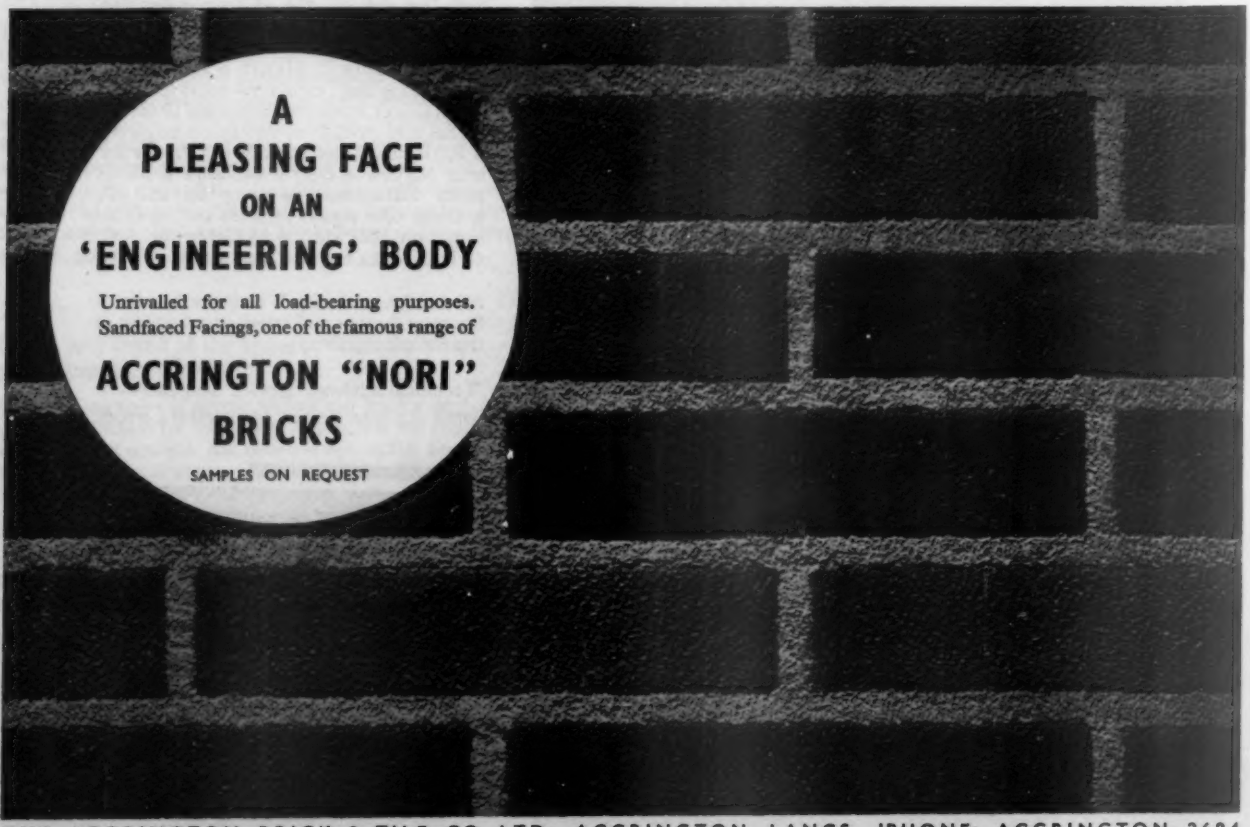
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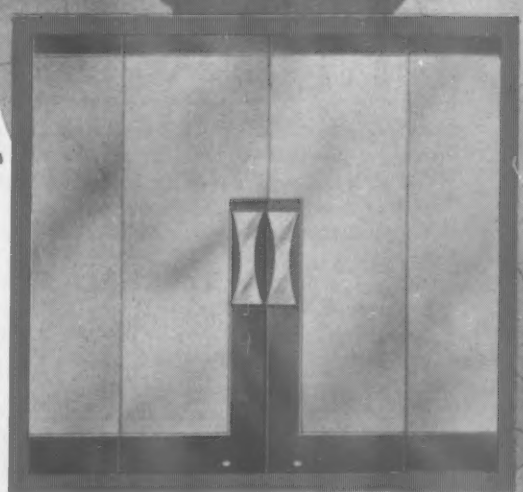
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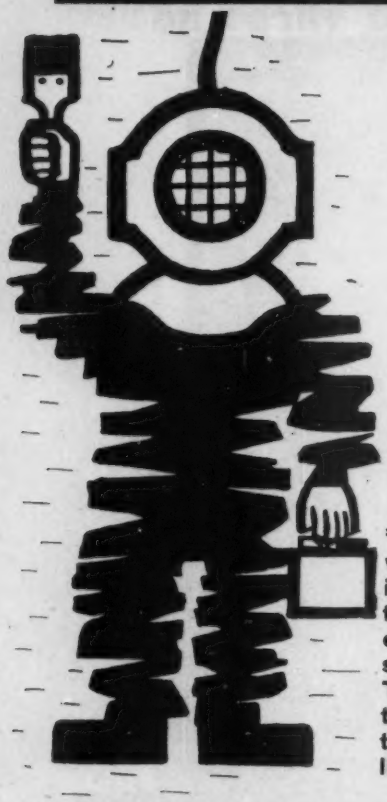
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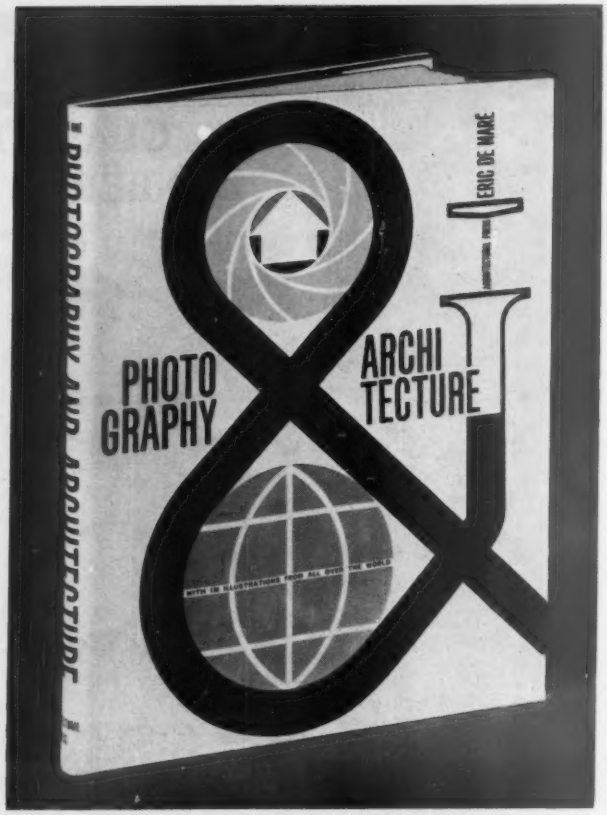
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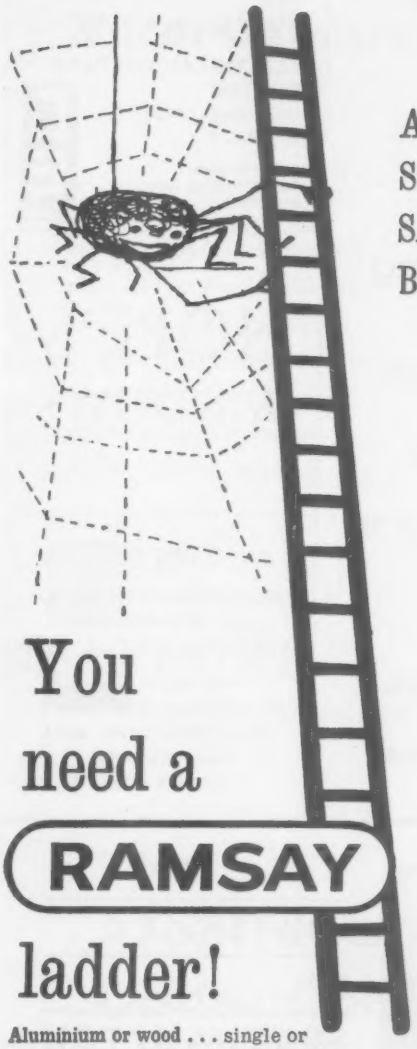
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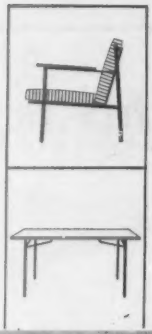
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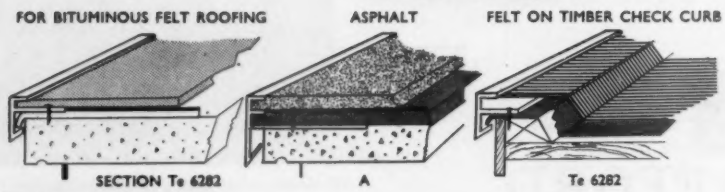
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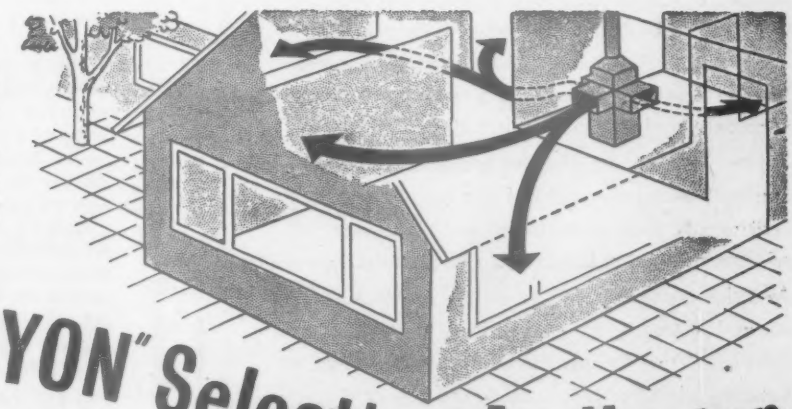
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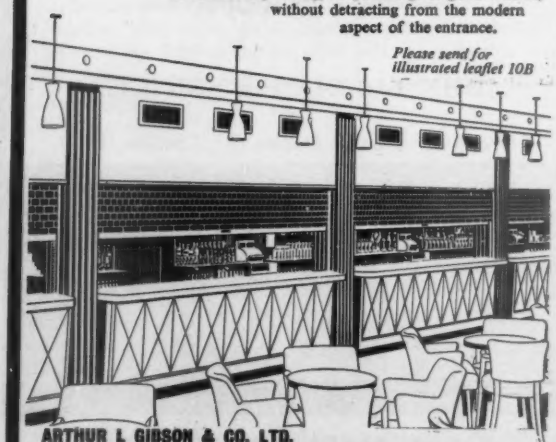
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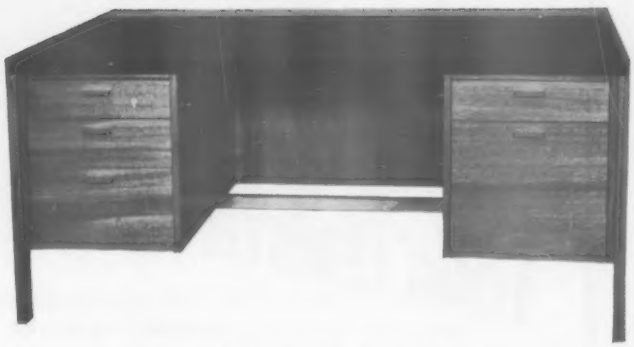
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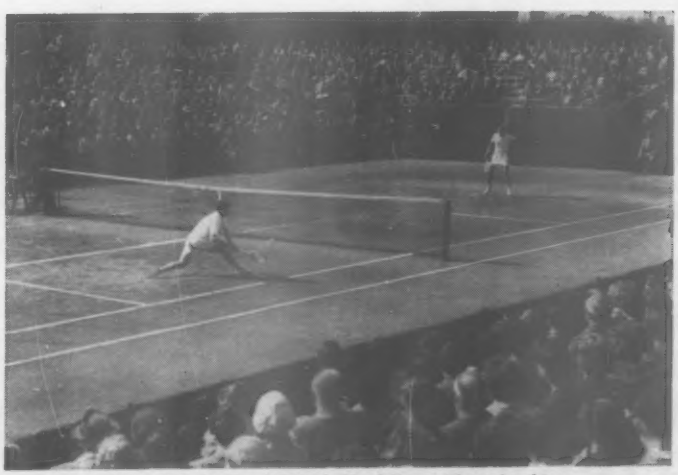
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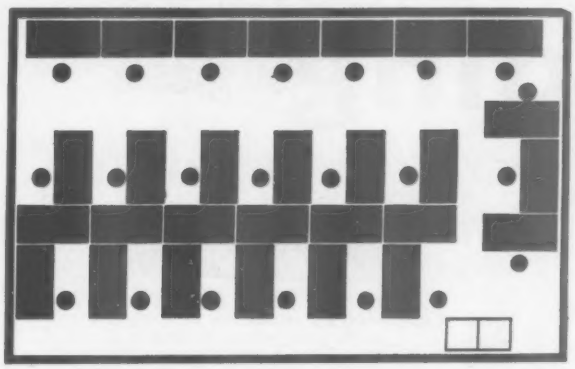
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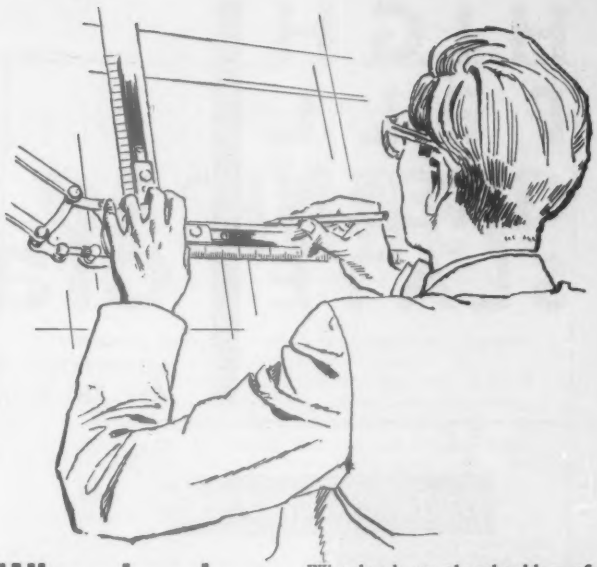
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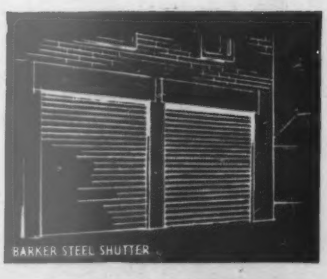


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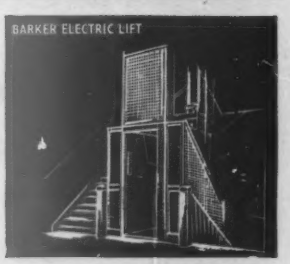
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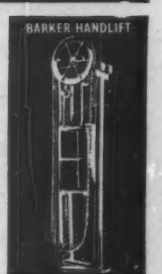
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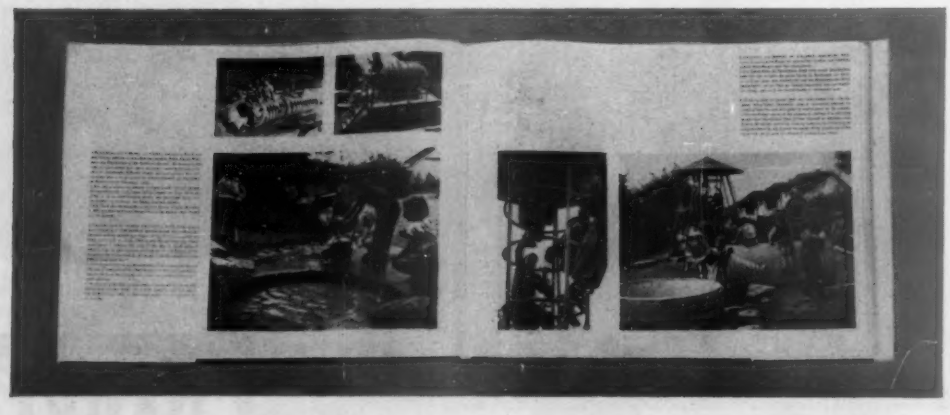




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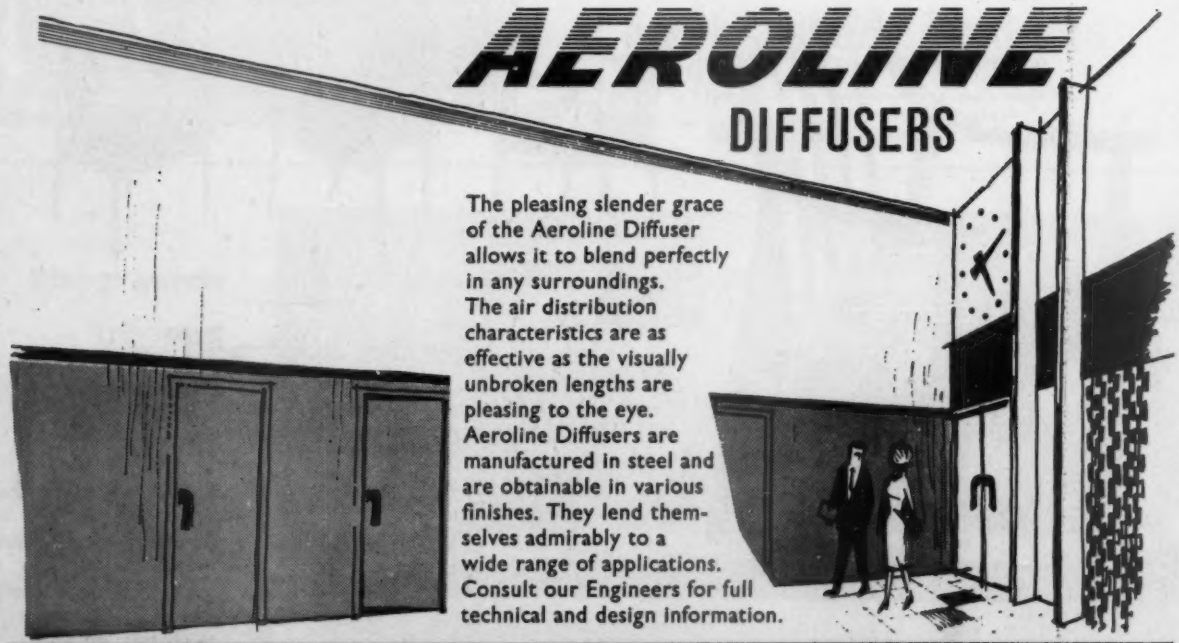
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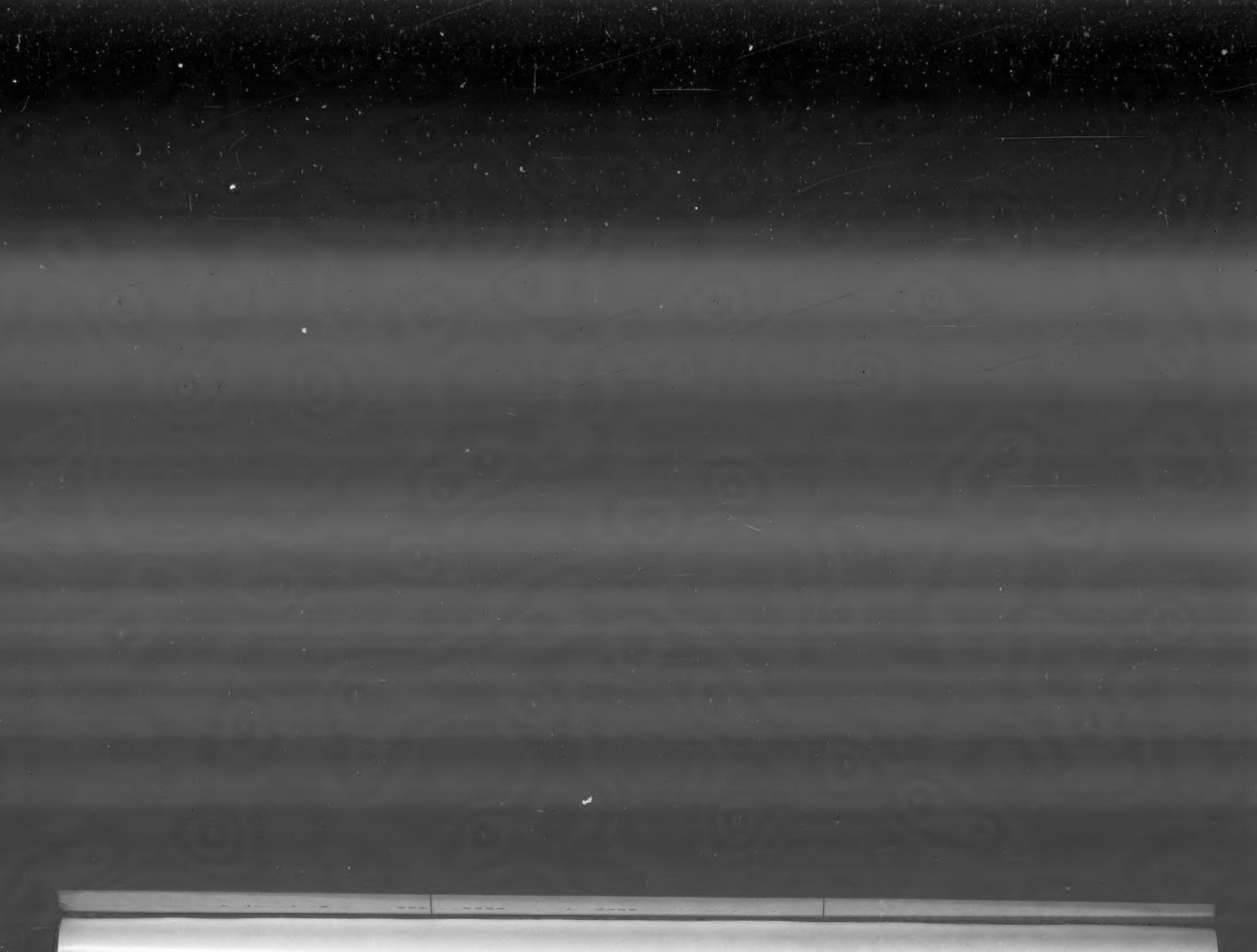
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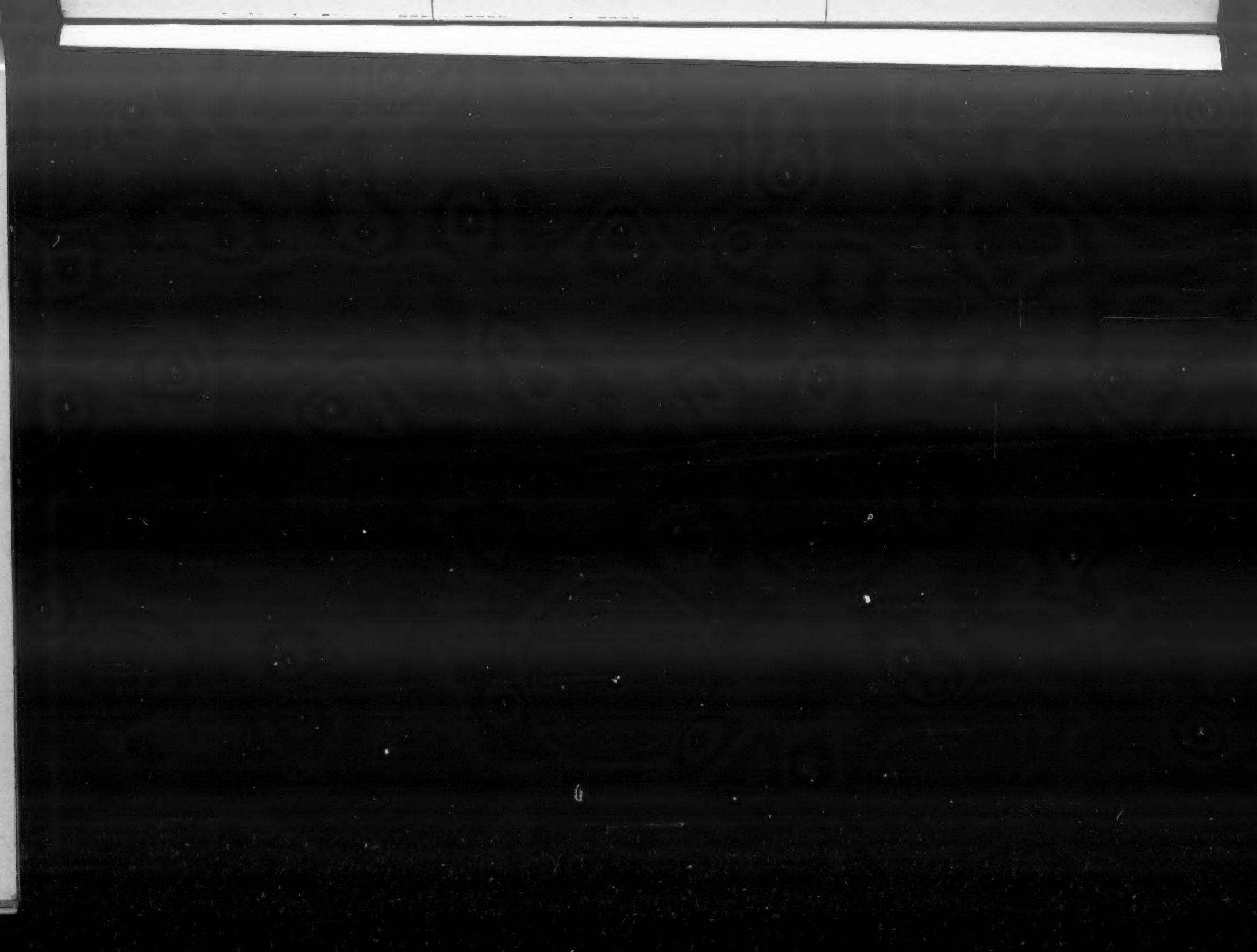
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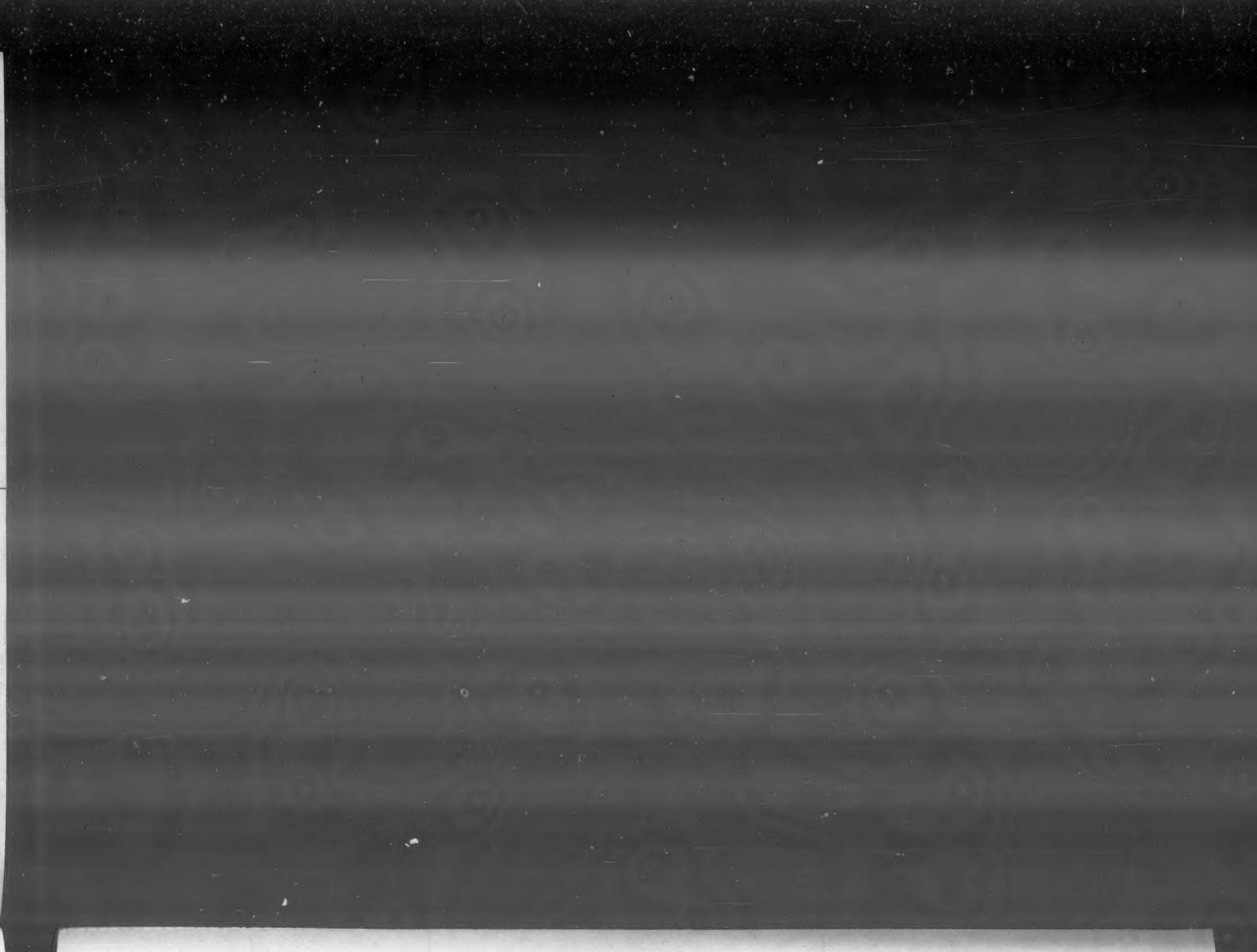
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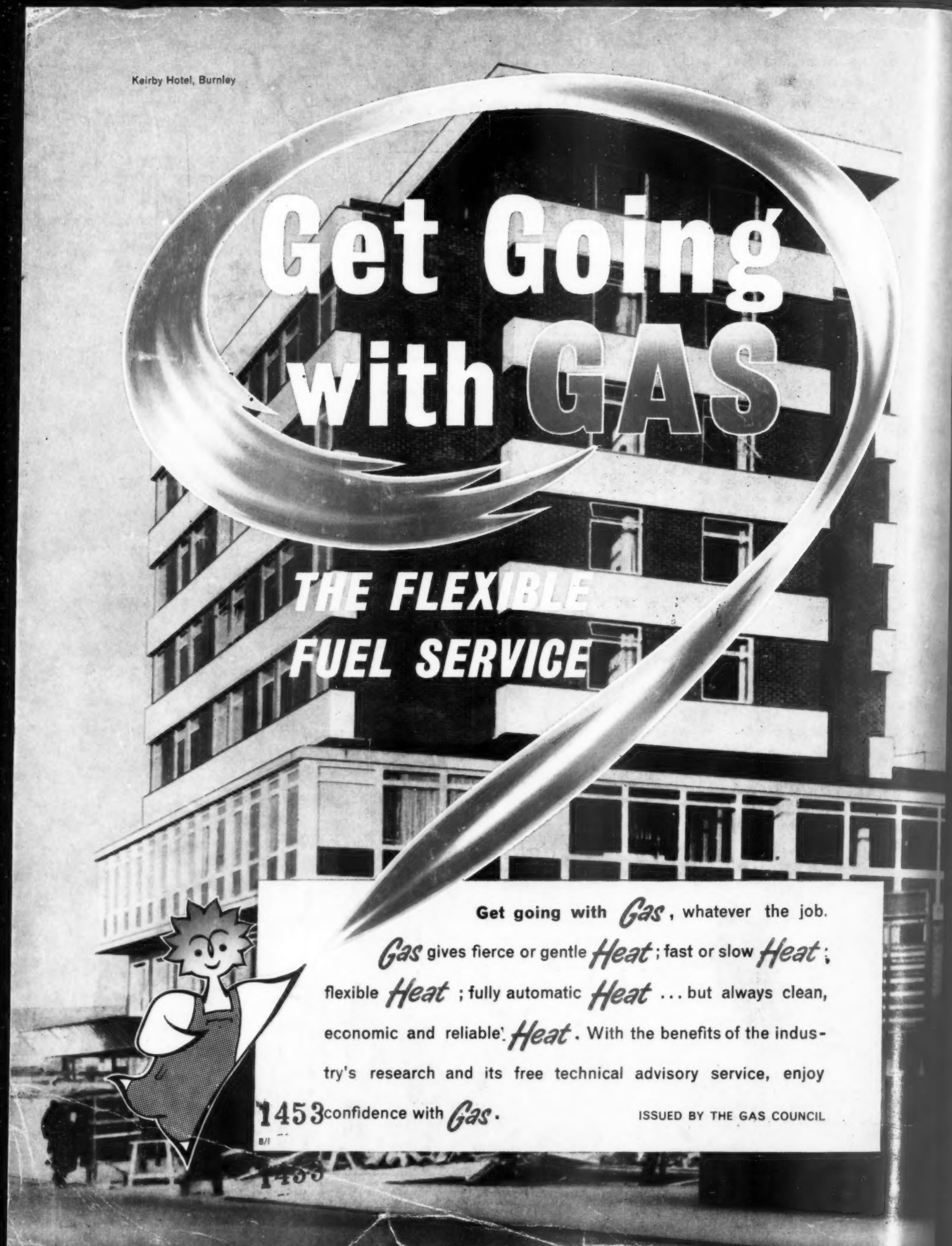
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